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WATER AND SALT DEPLETION*

BY

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Causation of Pure Salt Depletion

It has already been explained that the chief effect of salt depletion is a state of secondary or extracellular dehydration consequent upon loss of osmotic pressure in the extracellular fluid; therefore to speak of "pure" salt depletion may seem paradoxical. The expression is meant in a *causal* sense—that is to say, the state which occurs in patients who become deficient in sodium and chlorine *while being liberally supplied with water*. This state is common in medical and surgical practice, but is often unrecognized for what it is. The two essentials for its causation are: (1) Abnormal losses of sodium and chlorine. Simple inadequacy of intake does not, as in the case of water, produce serious deficieney. However, low intake or lack of intake may play an important part in the rapid development of depletion when abnormal salt losses are occurring. (2) Adequate water intake. As mentioned earlier, the condition of adequate water intake is frequently fulfilled in these days of "dehydration consciousness," when so many patients are rightly put on fluid balance charts. Water is pressed upon them or isotonic glucose solution is parenterally administered. The intake and output figures may be gratifying till the late stages. Yet the patients become weaker and weaker and finally die. Abnormal losses of sodium and chlorine may occur in alimentary secretions, sweat, or urine (Addison's disease). Table IV gives approximate maximum daily losses

TABLE IV.—*Possible Secretion Losses (24 hours)*

Secretion	Circumstances of Abnormal Loss	Volume	NaCl Equivalence		
			NaCl	= Isotonic Saline	
				Litres	Pints
		ml.	g.		
Sweat	Sweating	14,000	35	4	7
Saliva	Vomiting or gastric suction	1,500	8	1	2
Gastric juice ..	Vomiting or gastric suction	2,500	18	2	3½
Bile	Fistula	500	4	½	1
Pancreatic juice ..	Fistula	700	6	¾	1
Intestinal juices ..	Diarrhoea; intestinal suction	3,000	22	2½	4½
Mixed secretions:					
Vomit	Vomiting or suction	6,000	40	4½	8
Diarrhoea ..	Diarrhoea (choleraic)	7,000	50	6	10½

of sweat and alimentary secretions. It is obvious that smaller losses, prolonged over days or weeks, can also cause severe depletion, particularly if salt intake is lowered. In Great Britain vomiting and diarrhoea are the commonest causes of abnormal losses of sodium and chlorine. The large number of frequently occurring commonplace medical and surgical conditions causing vomiting and diarrhoea need not here be enumerated. Acute poisoning may cause extremely violent vomiting and diarrhoea, with precipitous decline of extracellular electrolytes, and provides particularly striking examples of the development of extracellular dehydration within a space of minutes or an hour or two (Marriott, 1935). Reference to Fig. 8 shows that vomiting and diarrhoea respectively cause very different proportional losses of chlorine and sodium. Vomiting causes great relative depletion of chlorine ions and the well-known tendency to alkalosis. Diarrhoea, on the other hand, has the reverse effect, with disproportionate loss of sodium and tendency to acidosis. Therapeutic continuous aspiration of gastric or intestinal contents (Wangensteen, 1942) can cause great withdrawal of these ions. Lyall and Nicol (1939a and b) found that continuous gastric aspiration resulted in removal of 93 g. of chloride, expressed as NaCl, in six days. Such an amount represents more than half the body's total. Bartlett *et al.* (1938) produced severe salt depletion in normal subjects. Gastric or intestinal suction drainage is a valuable method of treatment, but if used without parallel administration of saline can be highly dangerous.

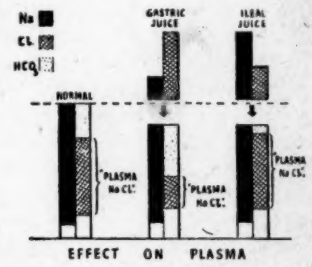

FIG. 8.—Showing the relative ratio of loss of sodium and chlorine in vomiting and diarrhoea.

The effects of pure salt depletion are perhaps best seen in severe sweating, accompanied by free drinking of unsalted liquid, because the relative proportions, though not the concentration, of sodium and chlorine in sweat do not deviate very much from the proportions in extracellular fluid and because there is little loss of other substances. Also, climatic and industrial conditions may permit mass observation of large numbers of normal individuals, suffering only from the effects of salt loss from sweating, without obscuring effects due to some underlying pathological condition. Such little understanding as I have of the effects of pure salt depletion comes mainly from observation, during four years in the Tropics, of men sweating severely while drinking water freely (Marriott, 1943, 1945a) supplemented by reference to the experience of others—notably Marsh (1937), whom I visited at Abadan, in the Persian Gulf, in 1942; Moss (1923), Dill (1938), Caplan (1942), Taylor *et al.* (1943), Ladell, Waterlow, and Hudson (1944); and last, but not least, McCance's classical experimental studies (1936). It was my duty in India to do special tours in the hottest weather (June) to observe heat effects in such particularly

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hot stations as Allahabad, Cawnpore, Lucknow, and Bareilly. The tour of 1942 was particularly instructive, because it happened to be an unusually hot season (maximum shade temperatures in the above stations were between 115° and 123° F. (46° and 50.6° C.) and sun temperatures very much higher) and because in that year —the first real war year for India—there was not adequate shade provision for men, nor was there general realization of the importance of extra salt intake. During this hot season there were 1,959 admissions to hospital for heat effects and 136 deaths. I personally saw some 400 cases. During my period in the Tropics I also saw salt depletion complicating the picture in many illnesses—for example, scrub typhus (Marriott, 1945b).

Much will be said below about the clinical and pathological features of pure salt depletion as seen, in uncomplicated form, in individuals whose salt loss arises from sweating due to heat. I wish to emphasize that the same clinical and pathological picture is frequently to be seen in the medical and surgical wards of our own hospitals in cases of vomiting, gastric or intestinal suction drainage, biliary or intestinal fistulae, diarrhoea (e.g., ulcerative colitis), and Addison's disease.

The main mechanisms by which the body may be most seriously injured by hot atmospheric conditions are: (1) loss of water and salt from sweating; (2) overheating from cessation of sweating. The first is called "heat exhaustion" —an unfortunate term, because it implies mere fatigue whereas it is a serious and may be a fatal state. In 1942 the incidence of this condition in India was 1,405 cases with 27 deaths in British troops and 255 cases with 13 deaths in Indian troops. There were many more Indian troops in the area at the time, and so the incidence in British troops was perhaps thirty to fifty times greater. The probable explanation would seem to be a lower concentration of NaCl in the sweat of Indians. Overheating from cessation of sweating is called "heat hyperpyrexia" or "heat-stroke," and its essential characteristic is a temperature of 107° F. (41.7° C.) or above. Its underlying cause seems most commonly to be some infection, often minor, which sets off the pyrexia reaction with its associated inhibition of heat-loss mechanism. In India in 1942 its incidence was 170 cases with 34 deaths in British troops and 129 cases with 62 deaths in Indian troops.

Heat hyperpyrexia is not relevant to the present discussion and will not be further considered. Heat exhaustion—heat exhaustion Type 1 in Ladell, Waterlow, and Hudson's classification (1944)—however, when occurring in men drinking water freely, presents a typical picture of pure salt depletion. Sweating without water drinking produces effects mainly of water loss, because sweat is much more dilute than extracellular fluid. Hence in men lost in deserts, and without water, the effects of water depletion overshadow the effects of salt depletion.

Effects of Pure Salt Depletion

Serious depletion of sodium and chlorine gives rise to the following conditions:

(A) An *invariable* loss of total osmotic pressure of the extracellular fluid. In consequence the kidneys excrete water and there is diminution of extracellular fluid volume—extracellular or secondary dehydration.

(B) A *possible* disturbance of acid–base equilibrium if loss of sodium and chlorine ions is not proportionate (see Fig. 8).

Both changes produce clinical effects, but of the two I would submit that the former is the more important. In severe vomiting and severe diarrhoea the main serious effects are the same in both conditions and are due to secondary dehydration. The manifestations due to alkalosis and acidosis respectively are of secondary importance. It has been unfortunate that it has so happened that the historical progress of medical discovery caused attention first to become focused on acid–base disturbances. This accident of history has resulted in undue preoccupation with acid–base changes, in cases of the type described, to the relative exclusion of the more serious effects due to loss of extracellular osmotic pressure. In any event, if sodium chloride is administered, along with enough water, the kidneys will automatically restore the acid–base balance by appropriate differential excretion of sodium and chlorine ions. These remarks are not, of course, intended to apply to disturbances of acid–base equilibrium arising from causes other than asymmetrical loss of sodium and chlorine ions in alimentary secretions—that is, not to acid–base alterations from the excessive administration of acid or alkaline salts, overbreathing, or the accumulation of ketone bodies.

A. Effects due to Loss of Osmotic Pressure

Lassitude; Apathy; Stupor.—Anyone who has lived in the Tropics knows the feeling of extreme lassitude in the hot weather and that it is alleviated by ingestion of extra salt. Caplan (1942) found fatigue and asthenia in 243 of 244 cases of heat exhaustion. McCance (1936) states: "We have all suffered from excessive fatigue and a general sense of exhaustion—Whitteridge and Niven both got into an extraordinarily interesting state, in which they were content to sit and do nothing in a chair for hours on end." Lassitude and apathy, progressing to stupor, were marked features in the cases of heat exhaustion which I observed. In the hot seasons I was often struck by the apathy of men in hospital for sickness of various kinds, especially those eating poorly; examination of their urine for chloride generally demonstrated its absence. Black (1946) has recently published a paper showing how an increased sense of well-being and a return of vigour were induced in cases of chronic sprue in India by the administration of extra salt. Such men were not only losing salt by the skin but also in their copious evacuations. Lassitude is an earlier and more pronounced feature in pure salt depletion than in simple water deprivation.

Weakness.—Muscular feebleness, as distinct from the mere disinclination for effort arising from the lassitude, is definite. McCance (1936) describes how he found his arm getting tired when shaving and noticed his jaws tiring when eating. The myasthenia of Addison's disease is well known.

Headache.—This is often present. It has the character of a low-pressure headache; it is much less noticeable if the subject gets out of the vertical position and lies down.

Giddiness and Tendency to Orthostatic Fainting.—This is frequent. I saw it in many cases of heat exhaustion. Caplan (1942) noted it in 215 of 244 cases. Ladell *et al.* (1944) say: "The effect of standing was dramatic. The pulse became progressively more difficult to feel and more rapid. The blood pressure fell and often could not be taken because the sounds were inaudible. The patient became increasingly pale, began to sweat profusely, to yawn and to complain of dizziness. He was obviously on the verge of syncope."

Normal Urine Volume (till Late Stages).—If the subject is drinking freely, urine volume is normal, or may be increased until the late stages, when nausea and vomiting occur; there is, however, a very slow excretion of any particular quantity of water ingested. McCance (1936) states: "We have all noticed that our water metabolism was not normal. After drinking a large amount of water no diuresis would develop at the expected time, but then hours later—possibly during the night—the diuresis would

begin." In Addison's disease delayed diuresis has been noted (Rowntree and Snell, 1931). It is the basis of the water-elimination test described by Robinson *et al.* (1941). The delayed diuresis is usually ascribed to delayed *excretion*. I shall presently advance another hypothesis, which I have not seen elsewhere put forward—namely, that the delay may be chiefly or in part in *absorption* and that the water may remain overlong in the stomach and alimentary tract. Chloride is absent from the urine except in Addison's disease.

Absence of Thirst.—This is most important. It has been laid down as an essential condition in the causation of pure salt depletion that there must be liberal intake, oral or parenteral, of unsalted water. However, even if intake is relatively low but not low enough to make the case one of predominant water depletion, there is no thirst; indeed, water is often repellent. I have seen men suffering from severe secondary dehydration refuse water or spit it out.

Anorexia→Nausea→Vomiting.—These symptoms, in the progression indicated, are present in most moderate or severe cases. Associated with the anorexia is loss or perversion of taste. Caplan (1942) observed nausea in 152, and vomiting in 136, of 244 cases. He regarded 194 of these cases as mild and 50 as moderate or severe; vomiting was invariable in the latter group. Ladell *et al.* (1944) noted vomiting in 73% of 45 cases. My own experience embraces a large number of cases, but unfortunately is impressionistic and unsupported by factual data, as the conditions of my tours precluded spending time on recording and I did not then consider publishing my findings. Indeed, the significance of some of the observations made did not become apparent until there was subsequent time for reflection. Anorexia, nausea, and vomiting are particularly important, because they inaugurate a vicious circle which causes rapid deterioration (Fig. 9). This train of events is well known in Addison's disease.

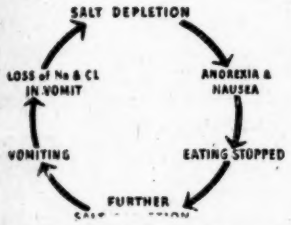

FIG. 9.—Vicious circle of events in salt depletion.

Weight Loss.—This is marked, especially in the early stages, in spite of free water intake. It is consequent upon the secondary dehydration. The weight tends to be of the approximate order of 1 kg. per 3.4 g. of sodium deficit (McCance, 1936).

Changes in Appearance.—Sufferers show signs of subcutaneous desiccation. The eyes are sunken from loss of orbital tissue fluid. In the late stages the appearance resembles the Hippocratic facies. The skin loses its elasticity, so that pinched-up folds do not smooth out on release. The patient no longer fills his skin, and in extreme cases the skin of the fingers may be wrinkled (" washerwoman's fingers " of cholera).

Cramps.—Heat cramps have long been well known. Especially have stokers and firemen realized that they tend to be precipitated by water ingestion and prevented by drinking salted fluids. Caplan (1942) noted cramps in 142 of 244 cases; Ladell *et al.* (1944) in 70% of 45 cases.

Mental Confusion and Delusions.—I saw several men with marked mental changes during and shortly after heat exhaustion; some were just confused and disoriented—a similar picture to that seen in severe vomiting or diarrhoea. Others had delusions. One young soldier was possessed with the idea that he was for execution on the morrow; a nursing sister was stated to be mad. Saphir (1945) has commented on how salt depletion, of a sustained mild degree, may simulate psychoneurosis.

Blood Changes

Plasma Sodium and Chlorine.—When salt depletion is severe there is a fall in the plasma concentration of sodium and chlorine. Most published figures relate to plasma chloride, expressed as sodium chloride, which may fall in extreme cases from the normal levels of 560 to 630 mg. per 100 ml. to 300 mg. per 100 ml. or even slightly lower. As the sodium ion is the more important from the osmotic standpoint, data regarding falls in sodium levels would be more relevant.

Blood Urea.—The blood urea rises (McCance and Widdowson, 1938). Ladell *et al.* (1944) found it raised in all cases of salt-depletion heat exhaustion; 12 out of 26 cases had levels above 100 mg. In spite of high blood urea and low urine volumes in their cases, the urea concentration in urine was low. In 9 cases the ratio between concentrations of urea in urine and plasma was measured and found to average 40 : 1. In severe vomiting and diarrhoea figures of the order of 100 to 200 mg. per 100 ml. or higher are commonplace. In experimental adrenalectomy (Harrop *et al.*, 1933) or in Addison crises the blood urea may be similarly raised.

Plasma Volume.—There is shrinkage of the plasma volume leading to haemoconcentration. Leonard Rogers (1908, 1909a and b, 1911, 1915, 1916, 1921) demonstrated many years ago how in severe cholera cases as much as two-thirds of the plasma volume may be lost. A similar loss may occur as a result of vomiting. In salt depletion due to sweating McCance (1938) produced in volunteers extracellular-fluid reductions of 28 to 38%; Ladell *et al.* (1944) found plasma-volume reductions up to 50% in heat exhaustion. In extreme salt depletion from vomiting, gastric or intestinal suction, fistulae, diarrhoea, sweating, or Addison's disease, a loss of as much as one-half to two-thirds of the plasma volume is possible. It is probable that definite circulatory manifestations (see below) hardly become evident until the plasma volume has been reduced by 15%. A systolic blood pressure below 90 mm. Hg probably indicates at least a 25% reduction. The relative normal ratio of plasma volume to tissue-fluid volume is about 1 : 4, but when the extracellular fluid is reduced through salt depletion the reduction of the tissue-fluid portion is relatively greater than that of the plasma portion (see Fig. 4B) because of increasing colloid osmotic pressure as the plasma protein molecules become concentrated. A reasonable rough assumption is that loss of a litre of plasma volume (normal plasma volume being approximately 3 litres) means a total loss of extracellular fluid of the order of 6 to 7 litres.

Plasma volume may be measured directly, and Evans (1945), in a valuable paper discussing the significance of alterations in blood volume, has rightly stated that blood-volume determinations should be part of the laboratory routine procedure of all hospitals; or, in a non-anaemic subject, the plasma-volume reduction may be deduced from data relating to haemoconcentration. Leonard Rogers was a pioneer in this field. Relevant data are the haemoglobin percentage, the haematocrit reading, and the plasma and whole-blood specific gravities. The last-named, as Rogers realized, is perhaps the most convenient for quick practical use. It may be determined by the falling-drop technique in graduated mixtures of glycerin and water (Rogers) or in graduated copper sulphate dilutions as proposed by Phillips and van Slyke (1943). The correlation between blood gravity and haemoglobin and haematocrit percentages is shown with clarity in their line chart. If the haemoglobin percentage is determined directly, or indirectly, the approximate order of loss of plasma volume can be obtained by

adaptation of a form of calculation proposed by Black (1940b):

$$\text{Plasma loss (in litres)} = 5 - \frac{5 \times Hb_1}{Hb_2}$$

where Hb_1 = 100%, Hb_2 = value in patient, and 5 litres is the assumed normal blood volume. I would say that, as a very rough rule, in secondary dehydration the plasma loss may be multiplied by 6 to give the total extracellular fluid loss. In extreme salt depletion, with a loss of one-half to two-thirds of the plasma volume, the consequent haemoconcentration may produce such high blood values as the following: specific gravity, 1064 to 1070; haemoglobin, 20 to 23 g. per 100 ml.; haematocrit, 58 to 64%; red cell count, 7 to 8 millions per c.mm. Such findings indicate an extracellular fluid loss in the region of 7 to 10 litres for a 70 kg. man, or about 2 imperial gallons.

Blood Viscosity.—Haemoconcentration increases the viscosity of the blood (Whittaker and Winton, 1933; Holbrook and Watson, 1939; Evans, 1942). Kekwick and I (1940) studied the flow of blood through capillary tubes in devising a capillary regulator, instead of a screw-clip, for obtaining a more constant flow in drip blood transfusions. We then realized the tremendous part that viscosity must play in determining the flow through small blood vessels and capillaries. Poiseuille's equation is said to hold for such flow (Whittaker and Winton, 1933; Seligman *et al.*, 1946).

$$\text{Flow} = \frac{\text{Pressure}}{\text{Viscosity} \times \text{Resistance}} \times \text{Constant.}$$

Hence, if the viscosity should be doubled the flow will be halved. Wynne Willson and I (1940) did some work with various concentrations of red cells in citrated or heparinized plasma in an endeavour to ascertain the correlation between progressive haemoconcentration and increase of viscosity. Our experiments were of a rough-and-ready character, designed to produce a quick answer to urgent resuscitation problems, and were not brought to a stage fit for publication. However, they showed that when the red cell count is around 7½ millions per c.mm. the blood viscosity is about double what it is when the count is 5 millions per c.mm.

The Circulation

If the decrease in plasma volume is at all severe the patient passes into a state of oligaemic circulatory failure or "shock." This is well understood in relation to severe vomiting and diarrhoea, and I have seen it often in heat exhaustion. Caplan (1942), reporting on 50 moderate and severe cases, states: "The patients exhibited all the signs of shock. The skin was cold and clammy—the blood pressure in the severe cases was indeterminable and in the moderate cases the systolic pressure was always below 95 mm. Hg—commonly 60 to 90—and the pulse pressure 2 to 10 mm. Hg." The peripheral failure of adrenalectomized animals or of patients with Addison's disease in crises is well known. The main factors in the production of circulatory failure are: (*a*) the reduction in blood volume, and (*b*) the increased blood viscosity. The effect of blood-volume reduction in producing shock (Robertson and Bock, 1919; Keith, 1919) has been much studied in the recent war (Kekwick, Marriott, Maycock, and Whitby, 1941; Dick, 1944; Evans, 1945). Less attention has been devoted to the effect of increased viscosity, which, of course, also occurs in plasma loss in burns and injuries due to crushing. I suggest that in the circulatory failure of severe salt depletion it plays an important part. Seligman, Frank, and Fine have recently published (1946) an experimental study on the haemodynamic effects of raised blood viscosity, and have shown its importance.

The clinical picture of the circulatory failure of salt depletion is the familiar one of increasing oligaemic vasoconstrictive shock. The patient is pallid and often in a clammy sweat. The extremities are cold (if atmospheric conditions allow cooling). The blood pressure is at first maintained and the diastolic pressure may be raised (Ladell, Waterlow, and Hudson, 1944) but later falls, and the pulse pressure is diminished. The veins are empty. The pulse deteriorates, first in force and then in tension, and usually quickens. Cyanosis of lips and nails appears as the condition develops. When the systolic blood pressure drops to about 70–80 mm. Hg anuria occurs. The mental condition is not as alert and clear as in haemorrhagic shock. The patient tends to pass into a confused stuporous condition and finally into coma. An important point to note in patients with oligaemic failure is the danger of sudden death from changes of position (Evans *et al.*, 1944), such as sitting the patient up to examine the chest.

Water Absorption

I have mentioned above how the subjects of pure salt depletion are not thirsty, and how they develop anorexia, nausea, and vomiting. In patients with severe heat exhaustion to whom I endeavoured to give saline by mouth I noted that often the saline, if not vomited, would stay in the stomach, which could be seen, through the abdominal wall, to be greatly distended. There seemed to be definite pylorospasm coupled with atony of the stomach. Other observations led me to believe that a tendency to spasm of the sphincters and lack of tone of the gut prevailed throughout the alimentary canal. I consider that the delayed diuresis of salt depletion may be largely a question of delayed absorption. It is my impression that fluids remain much longer than usual in the stomach, and that even when the pylorus is passed absorption is slow. I have recently had under my care a case which was typical of many others I saw before the war without appreciating their significance.

A woman aged 58, with pyloric stenosis due to old duodenal ulceration, and with the usual history of vomiting large amounts, had been vomiting intermittently for 10 years and daily for about a month. On admission she was stuporous and appeared to be dehydrated, and there was loss of skin elasticity. Her blood pressure was 90/50 mm. Hg, the plasma chloride, as NaCl, was 286 mg., and the blood urea 190 mg. per 100 ml. During the first three days of treatment she received intravenously 23 pints of isotonic saline solution (= 13 litres containing 110 g. of NaCl) and 8 pints (4.5 litres) of isotonic glucose solution; she also was given 3 pints (1.7 litres) of water by mouth. Owing to incontinence, urine measurement was not possible during the first two days. Her output of urine on the third day was 33 oz. (937.6 ml.) containing 3 g. of NaCl. By the fourth day she appeared almost recovered and the plasma NaCl had risen to 524 mg. per 100 ml. Intravenous fluid administration was stopped, and on this and the next four days she received by mouth 19 pints (11 litres) of fluid plus some solid food. There was no abdominal distension; therefore this volume had successfully passed her previously impassable pylorus. Pyloric stenosis was subsequently confirmed by barium meal and at operation.

Sanchez-Vegas and Collins (1946) have reported upon 50 patients with pyloric obstruction due to duodenal ulcer. Gastric retention disappeared in all except 3 under treatment, averaging five days, in which the chief measure seems to have been administration of large amounts of sodium chloride in hypertonic solution. The main purpose of the communication of these authors was not to make the point, which I am tentatively

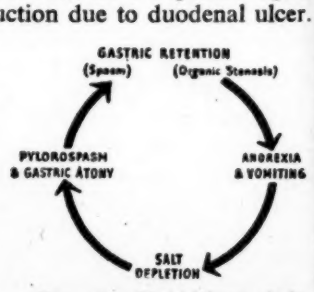

FIG. 10.—The vicious circle suggested in cases of salt depletion with pyloric obstruction.

suggesting, that pylorospasm may be a consequence of salt depletion, but to urge that urine chloride estimations are a better guide to progress than plasma estimations.

My observations on cases of heat exhaustion suggest that patients with pyloric obstruction may enter a vicious circle (Fig. 10). There is scope for radiological investigation of gastro-intestinal function, especially the emptying time of the stomach, in salt-depleted volunteers. It seems that salt depletion may also explain many cases of "acute dilatation of the stomach" and perhaps some of "paralytic ileus" in which there is no peritonitis. The effect of saline on peristalsis has been demonstrated by Eitel and Loeser (1934) and by Perazzo (1937).

B. Effects due to Disturbance of Acid–Base Equilibrium

When there is considerable asymmetrical loss of sodium or chlorine ions—such as the predominant loss of sodium in diarrhoea or the predominant loss of chlorine in vomiting (Fig. 8)—there is a disturbance of acid–base equilibrium, with a relative increase of bicarbonate with respect to chlorine in vomiting and a relative recession of bicarbonate in diarrhoea. The carbon-dioxide-combining power (alkali reserve: plasma bicarbonate) in ml. of CO_2 per 100 ml. of plasma may be over 100 after vomiting or under 20 after diarrhoea. As Gamble (1937) has said, the bicarbonate ion plays a "mendicant" part: it takes what base it can get.

Much attention has been directed in the past to these tendencies to alkalosis and acidosis, and many of the symptoms which have just been described, and attributed to loss of electrolyte osmotic pressure, were stated to be due to the distortion of acid–base balance. However, this is surely untrue, because all the manifestations, here called osmotic, may be seen in cases of severe sweating where there is no gross acid–base change; also all the manifestations are common to cases of either severe vomiting or severe diarrhoea. Indeed, apart from the different direction of ejection of alimentary secretions, there is little difference in the clinical picture presented by sufferers from emesis or catharsis. It is true that alkalosis or acidosis may have some intensifying effect on the anorexia, nausea, and vomiting which are certainly prominent enough in simple symmetrical sodium and chlorine depletion (sweating). Alkalosis may increase cramps through its tendency to cause tetany, but cramps are quite a marked feature of choleraic diarrhoea, in which there is acidosis, and are a characteristic feature of the salt depletion due to sweating. The only effect which seems mainly or wholly attributable to alkalosis or acidosis, when caused by vomiting or diarrhoea, is perhaps some difference, of little practical significance, in the character of the breathing.

The mechanism of death in pure salt depletion seems quite clearly to be circulatory failure due to a combination of reduction of blood volume and increase of blood viscosity.

Quantitative Correlation of Clinical and Pathological Manifestations with Amount of Salt Deficit

The ability to estimate the degree of deficit from the overall picture presented by the patient is a matter of great practical importance. It is so because, so far as I am aware, there is no other reliable index. The concentration of plasma chloride, expressed as NaCl, is often used as an index, but a little reflection will show, as Abbott (1946) has pointed out, that the concentration of chlorine or sodium cannot mirror the total loss of these ions because adjustment mechanisms, especially renal, work to preserve, so far as is possible, normality of concentration in the effort to sustain the prime essential—isotonicity. When plasma sodium and chlorine tend to fall the kidneys excrete water and, as already explained, there is sacrifice of plasma volume in order to preserve electrolyte concentration. How, then, can any measure of this concentration determine total deficit? Significant falls in plasma chlorine or sodium values only occur when total deficits are very gross. This point is well brought out by Sanchez-Vegas and Collins (1946) in their study of 50 cases of pyloric obstruction. All these patients had either very little chloride in their urines or none at all, and all required large amounts of sodium chloride to restore renal excretion of chloride to normal. Yet only 10 out of the 50 had plasma chloride concentrations, expressed as NaCl, lower than 510 mg. per 100 ml., although 29 had blood urea concentrations exceeding normal limits.

From the basis of personal experience I would suggest that cases of salt depletion may be divided into three grades:

(1) *Slight to Moderate Depletion.*—Low concentration or absence of chloride in the urine (except in Addison's disease), with lassitude and maybe giddiness and orthostatic fainting, indicates a deficit of up to 0.5 g. per kilo of body weight; in a 70-kg. man this represents a deficit of up to 4 litres, or 7 pints, of isotonic saline.

(2) *Moderate to Severe Depletion.*—Absence of chloride in the urine (except in Addison's disease), with lassitude, giddiness, and fainting; with anorexia and maybe nausea and vomiting; and with a fall of blood pressure but with a systolic pressure above 90 mm. Hg. points to an approximate deficit of 0.5 to 0.75 g. per kilo, which in a 70-kg. man would represent a deficit of 4 to 6 litres (7 to 11 pints) of isotonic saline.

(3) *Severe to Very Severe Depletion.*—Absence of chloride in the urine (except in Addison's disease), with apathy, stupor, vomiting, and a systolic blood pressure of less than 90 mm. Hg, suggests an approximate deficit of 0.75 to 1.25 g. per kilo—that is, a deficit of 6 to 10 litres (11 to 18 pints) of isotonic saline in a 70-kg. man.

The above divisions represent a very rough classification and are put forward merely as a crude guide to appraisal of salt deficit. There will be individual cases forming exceptions, but, at the same time, it is suggested that even rough clinical criteria may be better than seemingly accurate and scientific measurements of plasma concentrations of sodium and chlorine—not, of course, that these should be omitted.

A Useful Test

It will be noticed that absence of chloride in the urine is accorded a place of first importance. For several years I have used the very simple quantitative test described by Fantus (1936). This can be done in a minute, and is simpler than testing for albumin or sugar as no heating is needed. The requirements for performing the test are: a small test-tube; a small pipette ("fountain-pen filler"); 20% potassium chromate solution; 2.9% silver nitrate solution; some distilled water for rinsing the pipette. It is essential that the same pipette shall be used throughout so that the size of the drops shall be the same.

Technique.—Ten drops of urine are measured into the test-tube. The pipette is rinsed and one drop of potassium chromate solution—the indicator—added. The pipette is rinsed again, and then the silver nitrate solution is added a drop at a time and the test-tube shaken after the addition of each drop. The end-point is a sharp colour change from yellow to brown. The number of drops needed to produce the end-point gives the concentration of chloride in the urine expressed as grammes of NaCl per litre—for example, 5 drops = 5 g. of NaCl per litre. It is important to make a preliminary test with distilled water to make sure that there is no contamination of the chromate with chloride.

This very simple test is most useful not only in diagnosis but also in the control of treatment. When used for

diagnosis, chloride should be regarded as "absent" if the end-point colour change occurs with the first drop. This may happen in normal persons if the urine is very dilute because a large amount of fluid has been taken, but if it occurs in the absence of diuresis it is indicative of salt depletion, though the depletion may not have reached a degree sufficient to cause symptoms. In concentrated urine (with a specific gravity of more than 1020) less than 3 g. per litre suggests depletion. If the urine contains 5 g. per litre or more the patient, except in Addison's disease or during the administration of intravenous saline, is unlikely to be suffering from salt depletion. The test was found useful in India and South-East Asia Commands during the war in the detection of salt-depletion heat exhaustion and of salt depletion complicating many medical and surgical illnesses. In M.I. room work it was valuable in the hot weather as a quick method of separating cases of salt-depletion heat exhaustion from those of neurotic collapse and ill-health from other causes. White (1943) so applied it at Air Headquarters, Delhi, during June and July, 1943, to a series of 140 patients, of whom 29 were proved to be suffering from heat exhaustion. Its potential scope is not as great in temperate as in hot climates but is still enormous, for it is applicable in the diagnostic assessment and therapeutic regulation of all cases of threatened or actual dehydration or of overt oedema. Whenever fluid tends to be lost from or retained in the body, the measurement of urinary excretion of sodium chloride is as important, in many instances more important, than the measurement of urine volume. It is my belief that the means for performing this simple test should be available in all ward test-rooms and in every doctor's bag. A similar simple quantitative test for sodium would be even more valuable if it could be evolved.

(To be concluded, with a full list of references, in our next issue.)

MEDICAL ASPECTS OF PENICILLIN TREATMENT

BY

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This paper is based on a survey of the cases treated in the medical wards of St. Alfege's Hospital with systemic penicillin alone, or with systemic and local penicillin combined, from January, 1945, to September, 1946. In all, 129 patients were so treated. The cases are unselected, except that they were considered worthy of penicillin therapy on clinical or bacteriological grounds, and are consecutive cases. They were not the subject of special investigation as part of an experimental trial of penicillin treatment, but we have been continually alive to the fact that each case undergoing penicillin treatment is, even at the present time, an experiment in a new form of therapy, the application of which is by no means finally settled.

Our first regular supplies of penicillin became available in April, 1945, when we were allocated 5,000,000 units a month. This quota was gradually increased until at the time of writing our monthly consumption is between 150,000,000 and 200,000,000 units. The majority of cases were therefore treated in 1946. The 129 cases include the most serious and potentially fatal illnesses treated. An analysis according to the final diagnosis is shown in Table I.

The pneumonias form the largest group with 53 cases. Carbuncles, meningitis, and empyema are the next largest with 13, 11, and 10 cases respectively. The appearance of carbuncles, cervical adenitis, and diabetic gangrene among a series of cases treated in medical wards alone is part of the revolution in medical practice which penicillin has brought about. Particularly, and most dramatically, in the case of carbuncles is this change of practice welcome, most of all to the patient.

TABLE I.—*Medical Cases Treated with Systemic and Local Penicillin*

Disease	No. of Cases	Disease	No. of Cases
Respiratory diseases:		Streptococcal tonsillitis	4
Pneumonia	53	Diabetic gangrene	3
Acute bronchitis	3	Perinephric abscess	2
Empyema	10	Cellulitis	1
Lung abscess	2	*Staphylococcus aureus* Septicaemia	1
Carbuncles	13	Vincent's angina	1
Meningitis	11	Acute pyelonephritis	1
Secondarily infected skin lesions	8	*E. coli* septicaemia	1
Acute nephritis	6	Lobar pneumonia	1
Subacute bacterial endocarditis	5	Pemphigus, chronic nephritis	1
Cervical adenitis	5		

Below is given an analysis of the results of treatment of the more important groups of diseases, with a brief description of the methods used, and such points of importance bearing on treatment that have been brought to light.

Pneumonia

From January to December, 1945, 12 cases of pneumonia were treated, with 5 deaths, and from January to September, 1946, 41 cases, with 3 deaths. This represents an overall mortality of 15%. Of the 53 patients 26 were over 40 years of age and 10 were under 6 months; and the majority were cases of great severity. During the first period penicillin was scarce and dosages were in consequence low. The figures for the second period, giving a mortality of 7.3%, must be regarded as very gratifying. Four of the eight fatal cases were moribund on admission and death occurred within 24 hours; three had signs of congestive cardiac failure on admission; and one was a premature infant. Seven patients who recovered, two who improved, and five who died were also treated concurrently with sulphonamides. Fifteen cases received penicillin after the infection had failed to respond to sulphonamide therapy.

TABLE II.—*Cases of Pneumonia*

Variety	Recovery	Improvement	No Change	Death	Total
Lobar, unclassified	11	3	—	3	17
Bronchopneumonia, unclassified	11	—	2	5	18
Pneumococcal	4	—	—	—	4
Staphylococcal	4	1	—	—	5
Streptococcal	4	—	—	—	4
Mixed flora	4	—	—	—	4
Atypical	—	—	1	—	1
Total	38	4	3	8	53

The bacteriological classification of the cases is not complete, partly because many of the patients treated were too ill or too young to produce sputum, and partly because we were loath to ask too much of our ever-willing but overworked laboratory staff. We now regard a bacteriological diagnosis, with a penicillin-sensitivity test of the organism, as an essential in the penicillin treatment of pneumonia. Such information offers valuable guidance to the physician, particularly on the necessity for increasing the dose or for prolonging the course, in a case not initially responding to penicillin. Without this information he works in the dark. It may be significant that of the cases bacteriologically classified none were fatal.

Indications for Penicillin Treatment in Pneumonia.—Administration of sulphonamides is still our method of choice. Our indications for penicillin are: (1) Cases with a bad prognosis owing to clinical severity with signs of extreme toxaemia, old age, and infancy, particularly prematurity. In these cases penicillin and the sulphonamides

may be combined. (2) Cases failing to respond to sulphonamides within 36 hours, or cases known to be sulphonamide-sensitive. (3) Cases with congestive heart failure or renal disease where the excretion of sulphonamides is likely to be deficient. (4) Cases with complications such as diabetic ketosis or anaemia.

Treatment

Up to April, 1946, the usual adult dose of penicillin was 30,000 units initially by intramuscular injection, followed by 15,000 units three-hourly (120,000 units in 24 hours). For the past six months the initial dose has been 60,000 units, followed by 30,000 units four-hourly (180,000 units in 24 hours). In cases with a very bad prognosis the dose has been increased to 60,000 units four-hourly (360,000 units in 24 hours). The dose in infants has been of the order of 2,000 to 4,000 units per pound (454 g.) of body weight in the 24 hours, depending on the severity of the infection. Doses for children have been intermediate between this and the adult dose. All doses are made up to a volume of 1 ml. with distilled water. Larger volumes are likely to increase the discomfort of the injection.

Increased supplies of penicillin have therefore permitted the administration of larger doses at longer intervals, to the benefit both of patients and of nursing staff. The duration of treatment has been from 5 to 10 days, the majority of cases receiving a six-day course. Cases have responded to treatment in from one to four days—in most instances within 48 hours. Increased dosage at greater intervals is now a growing tendency in our practice. We are experimenting with doses of 250,000 units at intervals of 8 to 12 hours. The number of cases so treated is small, but the impression gained up to the present is that 250,000 units eight-hourly gives a more satisfactory response than a similar dose 12-hourly: 500,000 units 12-hourly is also under trial. This winter we should treat enough cases of pneumonia to form a definite opinion on this system of dosage.

I have included the above generalizations under the pneumonias as they form by far the largest group. These remarks apply equally to the treatment of my other groups.

Empyema

Ten cases of empyema have been treated, with eight recoveries and two deaths (Table III). Of the two deaths, one was that of a woman of 80 who died within 24 hours of admission; the other case was complicated by the presence of chronic pulmonary tuberculosis and grew *Haemophilus influenzae* in the pleural fluid.

TABLE III.—*Cases of Empyema*

Variety	Recovery	Death	Total
Pneumococcal	3*	1†	4
Staphylococcal	1*	—	1
Streptococcal	3	—	3
No organism	1	—	1
Influenzal (chronic pulmonary tuberculosis)	—	1	1
Total	8	2	10

* One pneumococcal and one staphylococcal case were treated by surgery.
† Female patient, aged 80, moribund; death within 24 hours.

Treatment has been by the administration of systemic penicillin in doses of 30,000 to 60,000 units four-hourly, with repeated aspiration of the fluid and intrapleural injection of 60,000 to 120,000 units of penicillin in 20 to 50 ml. of distilled water on alternate days. The pleural fluid, given a penicillin-sensitive organism, is usually sterile after the second intrapleural injection, five to seven injections being the usual number. Aspiration must be complete and be continued for a prolonged period if a satisfactory result is to be obtained. In the majority of our cases we were fortunate in beginning penicillin treatment early in the disease. In two cases surgery has been necessary, rib-resection being carried out. The indications for surgery are a thick exudate which cannot be aspirated, empyemas coming under treatment late in the disease, loculation of the fluid, and failure to sterilize the empyema with penicillin.

The series is too small for a dogmatic opinion to be given, but my impression is that if aspiration and penicillin replacement are started early, with a penicillin-sensitive organism, good results can be obtained by aspiration and penicillin injection only, provided aspiration is frequent, continued, and complete. If surgery is indicated the patient is handed over to the surgeon in good condition, without toxaemia and with a sterile effusion.

Meningitis

Eleven cases have been treated, with seven recoveries and four deaths (Table IV). Of the four fatal cases, one was an influenzal meningitis; one proved at necropsy to be a case of meningococcal meningo-encephalitis (in this case, although the cerebrospinal fluid became sterile two days after treatment with intrathecal and systemic penicillin, no clinical improvement resulted); the third was low-grade meningitis, with otitic hydrocephalus, which did not respond to penicillin treatment, the patient dying after operation at a cranial surgery unit. The fourth, a meningitis of unknown aetiology, proved fatal within 24 hours of admission.

TABLE IV.—*Cases of Meningitis*

Variety	Recovery	Death	Total
Meningitis, meningococcal	2*†	—	2
Meningo-encephalitis (meningococcal)	—	1*	1
Meningitis, pneumococcal	2*	—	2
" influenzal	2*	1*	3
" acute purulent	1*	1*‡	2
" low-grade with otitic hydrocephalus	—	1*	1
Total	7	4	11

* Also treated with sulphonamides.
† Systemic penicillin only.
‡ Death within 24 hours of admission.

In view of the excellent results obtained with sulphonamides, intrathecal penicillin is probably unnecessary in cases of meningococcal meningitis. The fever hospitals can advise us with more authority on this point. Our cases were treated with sulphadiazine and systemic penicillin only, and made rapid recovery.

Pneumococcal meningitis was treated by the intrathecal injection of 10,000 to 30,000 units of penicillin on alternate days for three injections. In each case the fluid was sterile after the first injection and recovery dramatic. Intrathecal therapy was supplemented by 60,000 units of penicillin four-hourly by intramuscular injections for 10 days and full doses of sulphadiazine.

The three cases of meningitis due to *H. influenzae* are most interesting and instructive. Dr. B. Gottlieb, in whose wards they were treated, is shortly submitting for publication a detailed account of their investigation and treatment. The *H. influenzae* was thought to be penicillin-resistant. We now realize that this organism is only relatively resistant to penicillin. Penicillin-sensitivity tests in one case showed that the organism (*H. influenzae*, Pittman type b), although insensitive to a penicillin solution of 10 units per ml., using the punch-plate technique, was inhibited by the same technique using a solution of 100 units per ml. The same organism was not sensitive to sulphadiazine or sulphathiazole in concentrations of 10 mg. per ml.

The first case, that of a child of 10 months, was treated with 27 intrathecal injections of 30,000 units of penicillin, with 15,000 units three-hourly systemically to a total of 4,440,000 units, and full doses of sulphadiazine. After the seventh

intrathecal injection the cerebrospinal fluid became sterile, but in spite of continued treatment the organism reappeared and the child died after nearly three months' treatment.

The second patient, a child of 21 months, received 10 intrathecal injections of 50,000 units in 15 days. 120,000 units three-hourly systemically for 48 days (46,000,000 units), and full doses of sulphadiazine. The cerebrospinal fluid became sterile after six intrathecal injections, and the child made a full recovery.

The third and most recent case, that of a child of 10 months, received three intrathecal injections of 50,000 units and three of 30,000 units in 10 days, with 60,000 units four-hourly systemically for 16 days (5,760,000 units). The fluid was sterile after the third day, and the child made a rapid and full recovery. The dosage has been progressively increased from the first to the third case, with an improvement in the result.

These three cases are of the greatest importance in demonstrating that resistance may be purely relative, and the administration of overwhelming doses of penicillin will save life where smaller doses will fail. Close co-operation with the bacteriologist is essential in the treatment of such cases.

To minimize the risk of meningeal reactions, only pure penicillin of a concentration of 1,660 units per mg. is used for intrathecal injection, and to lessen the even greater risk of introducing infection by a penicillin-resistant organism each dose is made up separately in a sealed ampoule. One reaction in the form of convulsions was noted in the 10-months-old infant, three convulsions occurring immediately after the sixth and last intrathecal injection. The child appeared very shocked during the reaction, but made a rapid recovery.

A problem which the physician often faces in treating meningitis is to decide on the line of action to be taken if a turbid cerebrospinal fluid is withdrawn and no immediate expert bacteriological opinion is available. The introduction of penicillin into the cerebrospinal fluid is not without risk, and it appears to be unnecessary in meningococcal meningitis. The risks are very slight, however, if the precautions I have previously mentioned are taken. My practice is to wait for a bacteriological diagnosis, if one can be obtained within a few hours, before giving intrathecal penicillin. If this is not available 10,000 units of penicillin are given intrathecally pending a bacteriological diagnosis on fluid previously removed. In very ill patients penicillin is given intrathecally immediately turbid fluid is withdrawn.

Carbuncles

Thirteen cases of carbuncle have been treated. Nine uncomplicated cases responded rapidly to 30,000 units given four-hourly. A disappearance of malaise and toxic symptoms occurred after 24 hours, and there were signs of local improvement on the second or third day. Treatment was continued for from five days in the smaller carbuncles to seven to nine days with large carbuncles. More recently, excellent results have been obtained by the administration of 100,000 units twice daily to a number of patients not admitted to hospital. Four cases had complications—two with staphylococcal septicaemia and bronchopneumonia and two with diabetes mellitus. The former were gravely ill, but made remarkable and rapid recovery with moderate doses of 15,000 units three-hourly for 14 days. These patients were treated early in 1945; the larger doses available later would have resulted in a more rapid response. One of the diabetics, treated with 40,000 units four-hourly for 7 days, relapsed with a slight flaring-up of the local infection. She quickly responded to a second course. The second case required 30,000 units four-hourly for 12 days. It would seem wise to continue the penicillin course in a diabetic for a longer period than in an uncomplicated case.

Before summarizing the more important general points I should mention that we were not able to convince ourselves that systemic penicillin influenced the course of the six cases of acute haemorrhagic nephritis so treated.

Summary and Conclusions

The following are the more important points that have arisen in our experience during the treatment of cases with systemic or systemic and local penicillin.

1. A bacteriological diagnosis should be obtained whenever possible, and penicillin-sensitivity tests on the organism carried out. This should not delay the institution of treatment in urgent cases, which may be started while bacteriological investigations are in progress.

2. Intermittent intramuscular therapy is our method of choice, injections being given four-hourly. The usual dose in adults is 30,000 units four-hourly, with 60,000 units four-hourly in severe infections. The present tendency is further to prolong the intervals, with increase in dosage. More work on these lines is necessary.

3. The volume of a single dose should not exceed 1 ml. Up to 250,000 units of the penicillin at present supplied (1,400 to 1,500 units per mg.) can be dissolved in this amount of distilled water.

4. Intrathecal therapy should be undertaken with the strictest aseptic technique; only pure penicillin of 1,660 units per mg. should be used. Each dose should be made up separately in a sealed glass ampoule.

5. The scope of penicillin treatment should include that group of organisms previously classified as penicillin-resistant. Tests for penicillin-sensitivity should be carried out in concentrations up to several hundreds of units of penicillin per ml. before resistance is considered a contraindication to treatment. This conclusion I consider to be of the greatest importance.

Penicillin therapy calls for the highest standard of diagnostic technique from the physician, and for an experimental and scientific approach to each case under treatment. A constant survey of the results obtained with given dosages for the various diseases is necessary until the position regarding optimum dosage and method of administration is stabilized. This may not be for some years.

The demands on the pathologist are increasing and will continue to increase with penicillin and allied therapy. His laboratory must be adequately staffed to meet these demands. The pharmacist is an indispensable member of the "penicillin team" and must be able to deal adequately with all forms of penicillin preparations, including those in non-hospital practice calling for a licence under the Therapeutic Substances Act. His pharmacy must be equipped at least up to the standard demanded by the Act.

More Recent Experience

Since November, 1946, when this paper was written, twenty adults suffering from pneumonia have been treated by the systemic administration of 250,000 units of penicillin at twelve-hourly or eight-hourly intervals. These cases were not selected, as were those of the paper, on grounds of clinical severity but were consecutive patients suffering from pneumonia admitted to two medical wards. Of the twenty cases, sixteen were classified as lobar pneumonia and four as bronchopneumonia. A radiological diagnosis was obtained in each case. Three cases were treated by 250,000 units twelve-hourly. One (pneumococcus) responded satisfactorily; two (*Streptococcus viridans*, penicillin-sensitive) gave responses delayed to four and seven days, as shown by the temperature, pulse, and clinical condition.

On the experience of the two latter cases the dosage was increased to 250,000 units eight-hourly for an average of six days. Of the seventeen cases so treated, thirteen were

classified as lobar pneumonia and four as bronchopneumonia. The predominating organisms were pneumococci and a mixed catarrhal flora. The patients' ages ranged from 16 to 87 years (two cases), with an average of 50 years. There were fifteen recoveries and two deaths. One of the two fatal cases, a man of 45, was admitted in a semi-conscious condition with severe toxaemia and congestive cardiac failure. He died within eighteen hours of admission after receiving two injections of 250,000 units of penicillin. The second fatal case, a man of 87, died on the seventh day of treatment from congestive cardiac failure, with auricular fibrillation and arteriosclerotic myocardial degeneration, after an initial apparent response to therapy. The fifteen patients who recovered all showed an excellent response to penicillin treatment. The temperature and pulse fell by crisis, and there was a great improvement in the clinical condition with loss of toxaemia in an average of thirty-six hours from the beginning of treatment. The average duration of stay in hospital of these patients was fourteen days.

My thanks are due to Dr. B. Gottlieb, senior resident physician at St. Alfege's Hospital, for the invaluable help he has given me in preparing this paper, and to many other members of the medical staff who have assisted in the treatment of these patients. I am grateful to Dr. E. N. Allott, of the Lewisham Group Laboratory, for his generous co-operation and advice, which have meant so much to us in developing penicillin treatment. Finally, I would thank Mr. White, the chief pharmacist, whose skill and ingenuity in dispensing this new and labile substance in all its forms have been a stimulating example of the high pharmaceutical technique we now expect from our pharmacists.

THE PLACE OF UNILATERAL RENAL DISEASE IN HYPERTENSION

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Until recently hypertension has been the province of the physician and, apart from blood-letting, its treatment has been mainly rest and a restriction of activity. Now, however, there is a surgical approach to this very great problem, and attacks have been made along both direct and indirect lines. *Direct:* In cases in which unilateral renal disease has been found it may be assumed that this plays some part in the genesis of the hypertension, and the offending organ may be excised in an endeavour to remove this cause. *Indirect:* By interruption of the sympathetic nervous system a lowering of the blood pressure has been obtained. All operations of this type have their effect irrespective of the aetiology of the hypertension, and do not attempt to remove its cause.

This paper is concerned with the direct line of attack. It has been our routine to perform excretion pyelography in every case of severe or considerable hypertension which has come under investigation. If at this examination both kidneys do not show a normal contour of pelvis and calices, then further investigation by cystoscopy and retrograde pyelogram has been undertaken. The following cases of hypertension occurring in association with renal disease have been encountered, and it is desired to put them on record.

Case 1

A flight-lieutenant aged 38 noticed puffiness of the eyelids and swelling of the ankles in June, 1943. This persisted and became gradually worse. In September, 1944, he had an attack of acute tonsillitis, and at a medical board was found to have a raised blood pressure and albuminuria. For some years he had had frequency of micturition. He was admitted to an R.A.F. hospital on Jan. 12, 1945, and was seen to be a well-nourished man with no demonstrable oedema. The blood pressure was 215/140. The heart sounds were normal. Nothing abnormal was found in chest and abdomen. The blood urea was 33 mg. per 100 ml. Van Slyke: first hour 85%, second hour 92%. There was no albumin or deposit in the urine. A radiograph showed a calculus in the pelvis of the left kidney. He was given 21 days' leave, and returned to hospital on Feb. 13. A radiograph showed the calculus to be in the same position. Blood urea, 38 mg. per 100 ml. Blood pressure, 190/130.

On Feb. 18 the left kidney was exposed through a curved loin incision. It appeared normal in size and consistency, but was rather adherent to the perinephric fat. The pelvis was cleared and opened posteriorly, and the stone was removed. A bougie was passed down the ureter easily, and the opening in the pelvis was sutured. The wound was closed and a rubber drain inserted. He passed some blood-stained urine the following day, and there was a slight leakage from the drainage-tube for the first three days after operation. Convalescence was satisfactory. On March 14 the blood pressure was 180/120.

Case 2

A wireless operator aged 25, with 4½ years' service, began to have headaches about June, 1944. These became more frequent, and about the beginning of May, 1945, he noticed that the left side of his field of vision was blurred. His appetite was good, weight steady, and bowels regular. There were no urinary symptoms. Past history revealed nothing relevant.

On May 30 he was admitted to an R.A.F. general hospital overseas. His right vision was 6/6, left vision 6/6. The fundus of the right eye showed a cotton-wool-like horseshoe-shaped area, enclosing the macula nasally, and the disk was oedematous. There were one or two small haemorrhages and a patch of exudate in relation to the superior nasal vessel. The left fundus showed similar changes. The urine contained albumin +. The blood pressure was 210/160. Urea concentration was 78% of average normal. Two years previously he had been rejected for flying duties because his blood pressure was raised (amount not stated). On June 18 he was transferred to an R.A.F. hospital in England with a diagnosis of malignant hypertension.

On admission his general condition was good. The tongue was clean, pulse 100. blood pressure 260/180. The apex beat was in the fifth space, outside the mid-clavicular line, with a thrusting impulse but no bruits, and the artery walls were thickened. The lungs were normal. The liver, spleen, and kidneys were not palpable. Examination of the central nervous system revealed nothing abnormal; the jerks were brisk. The disks were substantially as above, with commencing papill-oedema of the right eye. There was defect in the left upper outer quadrant of the visual fields.

Investigations.—Urine specific gravity 1020, albumin +. Urea clearance: first hour 2.26 g.; Van Slyke 133%. Second hour 2.3 g.; Van Slyke 129%. Blood urea: 33 mg. per 100 ml. Midstream specimen urine showed a moderate number of red blood cells, calcium oxalate crystals, epithelial cells, and several granular casts; culture was sterile. Blood count: R.B.C., 4,800,000; haemoglobin, 94%. Excretion urography showed a slight degree of hydronephrosis of the left side, with no excretion on the right side up to 60 minutes. (See Fig. 1.) Cystoscopy showed the bladder mucosa to be normal. Both ureteric orifices were normal. A catheter was passed up the right side without obstruction to 20 cm. and 35 ml. of sodium iodide 12% was injected. Radiographs revealed a small kidney with a marked hydronephrosis, and a diagnosis of hypoplastic kidney was made. (See Fig. 2.) Despite continued rest in bed the blood pressure remained raised; the lowest recorded was on June 29, when it was 235/145.

On July 10 the right kidney was exposed through a curved loin incision. It was represented by a shell of tissue only,

and there was a fair-sized funnel-shaped hydronephrosis. The kidney was removed. (See Figs. 3 and 4.) The next day the blood pressure was 118/76. Apart from a little blood-stained urine, the patient had passed nothing since the operation. He

FIG. 1.—*Case 2.*—Excretion urography, 15 minutes; showing slight degree of hydronephrosis on the left side. No excretion on the right. Calcified glands at level of transverse process of third lumbar vertebra, right.

FIG. 2.—*Case 2.* Retrograde pyelogram on right side. Tip of catheter to level of second sacral segment. Bizarre pelvis with small renal shadow.

was given 2 pints (1.14 litres) of sodium sulphate, followed by glucose-saline. On July 12 he began to pass some urine. The blood urea was raised to 120 on the 11th, on the 12th it was 160 and the blood pressure 140/92. He passed 71 oz. (2 litres) of urine. On the 13th the blood urea was 100 mg. per 100 ml., and from then onwards it gradually fell until on July 24 it was 34 mg. per 100 ml., and the output and intake were normal. The blood pressure was 140/80.

On Sept. 4 the headaches were much better. The sole complaint was of slight vertigo on getting up suddenly and some discomfort over the nephrectomy scar. Urine: n.a.d., no deposit, culture sterile. The blood pressure was 140/100. Ophthalmic report: There is some sheathing of the vessels where the exudates have been and a scotoma of the left eye but no signs of active retinopathy.

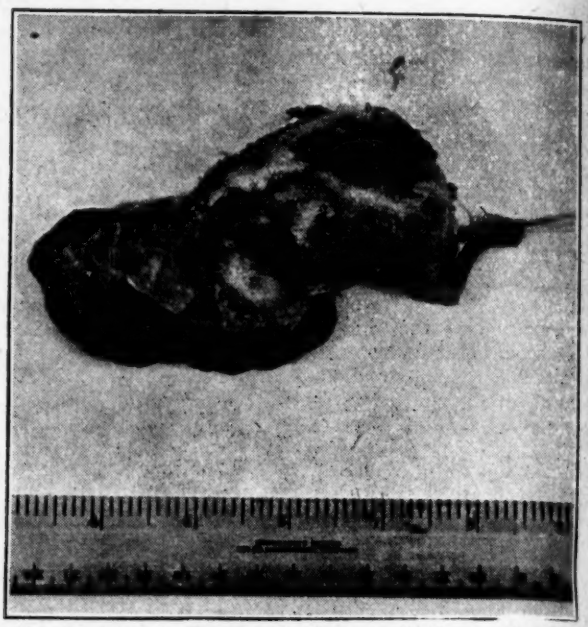

FIG. 3.—*Case 2.* Photograph of removed kidney. There was no mechanical obstruction of the ureter.

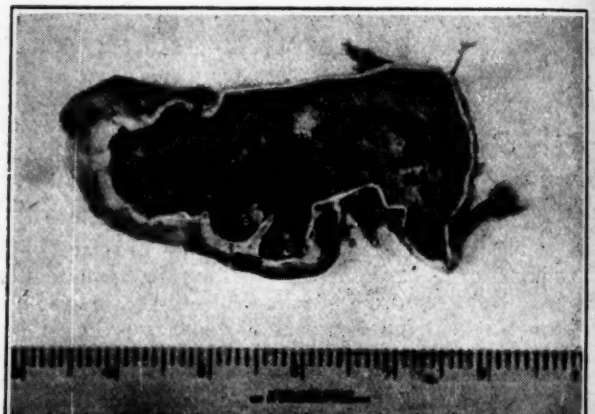

FIG. 4.—*Case 2.* Specimen cut open. Practically no renal parenchyma left.

Case 3

L.A.C.W. aged 27, with 4 years' service, reported sick on July 13, 1945, complaining of blurring of vision and headaches; she was admitted to hospital. For some two years she had had bilious attacks consisting of violent headaches and vomiting. The attacks lasted about 12 hours, and then cleared up for a period of from two weeks to two months. The present attack had begun 7 days before, and in 4 days the vision had become blurred. There was nothing in her past medical history of significance.

On examination her general condition was fair. The left vision was 6/8, the right vision 6/24. Nothing abnormal was seen in the lungs and abdomen. Neither kidney was palpable. The pulse was 100, and blood pressure 260/210. Heart

sounds: triple rhythm at apex, aortic second ++. Urine: albumin, faint trace; centrifuged deposit—epithelial cells only; culture sterile. Urea clearance: first hour, 76%, second hour, 74%. The blood urea was 39 mg. per 100 ml.

Ophthalmic report: Bilateral swelling of the nerve head with scattered patches of exudate. No haemorrhages seen. The vessels appear somewhat attenuated. The fundus appearances are those of malignant hypertension.

An intravenous pyelogram revealed no function on the left side. The outline of the right kidney pelvis and calices was normal. On cystoscopy the right ureteric orifice was normal; no orifice was seen on the left side.

At operation on Aug. 8, 1945, the left loin was explored. A curved loin incision was made and the renal space opened and examined. There was no evidence of a kidney. The suprarenal gland was identified. The extraperitoneal space on the left side was explored down to the pelvis: no evidence of kidney. The wound was closed, with drainage. The blood pressure on Oct. 16 was 260/200. On Oct. 31 the patient proceeded on sick leave, pending discharge from the Service, and died suddenly in the street three weeks later.

Discussion

When a new treatment or a new conception of an old condition is introduced it has at least a temporary vogue, and unilateral renal disease as a cause of hypertension has been no exception. A number of papers have appeared, some with an extensive series of cases, describing hypertension relieved after nephrectomy for unilateral renal disease. On analysing these cases the majority are seen to fall into the group of mild hypertension, and success has been claimed for the treatment if the blood pressure has been reduced by as little as 20 mm. Hg. It is well established that a period of complete rest in bed, with appropriate dietary care, especially if accompanied by a major operation, will be followed for a time by some fall in blood pressure. Most of the published cases fall into this class. Often there has not been a clear-cut urological indication for the nephrectomy, and its performance has had only a slight temporary effect on the hypertension.

In our first case the patient had a relatively mild hypertension. On excretion urography and on indigo-carmine excretion at cystoscopy both kidneys appeared to be functioning normally. It was therefore not considered justifiable to remove the kidney. The blood pressure fell slightly after operation, and from the time the patient was first seen it had been reduced from 215/140 to 180/120. It is not considered that this was in any way attributable to the removal of the stone from the kidney, for the fall is not more than would have been expected from the combined effect of rest in bed and a major operation.

In Case 2 there was a dramatic fall in the blood pressure after nephrectomy. In addition symptoms subsided completely and there was a remarkable clearing of an advanced retinopathy. In view of this there would seem to be no doubt that the hypoplastic kidney was intimately concerned with the production of the malignant hypertension. A case of hypertension was described by Schwarz (1924) in which a hypoplastic kidney was found post mortem. Higbee (1944) reported two cases of congenital renal hypoplasia with hypertension, and both of these were relieved after nephrectomy.

In renal hyperplasia there is an immature or rudimentary kidney. It must be differentiated from renal agenesis, as in Case 3, where no kidney tissue is present, and from renal aplasia in which rudimentary kidney tissue exists without any collecting system. There is a thin rim of parenchyma which secretes urine of varying amount and quality. The calices may be normal or bizarre, and the pelvis may be hydronephrotic or quite small and bulbous in shape. The ureter is usually normal. As a general rule the kidney is too poor in function to excrete dye in sufficient concentration to give a picture after an intravenous pyelogram, so that a retrograde pyelogram is necessary to show the configuration of the pelvis and calices.

The hypoplastic kidney, like all other congenital abnormalities, is liable to become infected, and there may be repeated attacks of infection or a chronic infection which both macroscopically and microscopically alter the kidney. Histologically, the glomeruli are usually small and scanty; some may be hyalinized. The epithelial lining of the tubes is degenerated, and it may be difficult to distinguish the appearance from the atrophic changes brought about by pyelonephritis in a normally formed kidney. Lowsley (1944) states that almost every hypoplastic kidney causes pain and that nephrectomy is necessary to relieve it. In our case there were no renal symptoms, nor was there anything in the previous medical history to suggest that there had been.

The most widely accepted explanation of the cause of hypoplasia is that the foetal kidney, during some stage of its development, receives an inadequate blood supply. There is, in effect, an embryological ischaemia. The resulting peculiarity of formation is, of course, dependent on the time of development at which the deficiency in blood supply occurs.

In Case 3 the patient had malignant hypertension, and no evidence of a left kidney was found. It was considered just possible that the case might be one of renal aplasia, and, if so, that the rudimentary kidney could be responsible for the hypertension. After full discussion with the patient and her parents, and without offering other than a possible chance of relief, an exploratory operation was advised and undertaken, with negative result.

These cases illustrate the necessity for renal investigation in hypertension. In Case 1 the stone which was found could only have done harm to the kidney, and would have adversely affected the hypertension had it not been removed. The renal lesion was not the cause of the hypertension, and therefore surgical treatment directed to the calculus could be expected to be followed by only a temporary lowering of the blood pressure.

In Case 2 there was a dramatic fall in blood pressure after the removal of the affected kidney. So much so that the remaining kidney was temporarily thrown off its balance and failed to excrete for a period of 36 hours. Although the case was followed up for only a few months, after which time the patient returned to Argentina, there was no doubt as to the immediate effect of the surgical treatment. In the third case the exploratory operation was purely speculative and entirely unproductive.

It would appear that unilateral renal disease is not a common cause of malignant hypertension, but it does undoubtedly occur. Investigation of the renal tract must therefore always be considered. If a unilateral disease of the kidney is found it should be treated according to accepted urological standards, and operation should be performed with a view to treating the renal lesion rather than the hypertension. Treatment should not be refused because of high blood pressure or advanced cardiovascular disease. In some cases the dramatic beneficial effect of a nephrectomy will undoubtedly make justifiable surgical intervention in a poor-risk subject, and may prolong life or even effect a cure in an otherwise fatal disease.

Summary

Three cases of unilateral renal disease—calculus, hypoplasia, and agenesis—associated with hypertension are described.

Removal of the calculus did not materially affect the blood pressure.

Removal of the hypoplastic kidney produced a dramatic fall in blood pressure, and this remained low over the period of some months during which the patient was observed post-operatively.

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ARSENICAL ENCEPHALOPATHY

AN UNUSUAL CASE OCCURRING IN THE TREATMENT OF CONGENITAL SYPHILIS

BY

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The onset of acute cerebral symptoms occurring during, and attributable to, organic arsenical therapy is a well-recognized but rare clinical condition.

Arsenical encephalopathy was first described by Almkvist (1911), Fischer (1912), and Kannengiesser (1912). Its incidence is given by various authorities as follows. Only 8 cases are recorded from 800,000 intravenous injections of organic arsenicals given to the British Army in the 1914–18 war (*Brit. Encyc. med. Pract.*, 1939). Glaser, Imerman, and Imerman (1935) estimate the mortality secondary to neurological involvement in standard arsenical therapy as 1 in 5,398. The incidence of arsenical encephalopathy is increased in the intensive treatment of syphilis; Stokes, Beerman, and Wammock (1943) estimate the mortality in the five-day treatment of syphilis as between 1 in 200/300. Rattner (1943) describes 481 cases of syphilis treated with 0.24 g. mapharside by intravenous drip given daily for 5 days, in which 3 cases developed cerebral symptoms without fatal result. Craige and Sadusk (1944) report 74 cases of early syphilis in which no cerebral complications occurred following the same course of therapy. However, Goldstein, Stolman, and Goldfarb (1943) give the incidence of arsenical encephalopathy as 1.3% in intensive mapharside therapy.

We should like to present a case of arsenical encephalopathy occurring in a young adult with congenital syphilis, in whom we adopted the treatment suggested, and used with much success, by Ransome, Paterson, and Gupta (1945).

Case Report

The patient, a soldier with no overseas service, was admitted to this hospital on March 12, 1946, for surgical treatment of a right inguinal hernia. His age was 20, his general condition and physique were satisfactory. On examination he was found to have a left interstitial keratitis and iridocyclitis, and he gave a history of "inflammation of the eyes" for the past nine years. The Wassermann and Kahn reactions were both positive on two occasions in March, 1946. The hernia was treated successfully by radical surgery, and the following antisyphilitic therapy was adopted.

Local treatment consisted of subconjunctival injections of penicillin (500 units per ml.), penicillin drops, 2% atropine drops, and hot bathings. Systemic treatment was started on March 14 with 3-hourly intramuscular injections of penicillin—a total of 1.7 mega units being given. Arsenical therapy was begun on the 30th, 0.3 g. neoarsphenamine being given twice weekly for 5 weeks, ending on May 10. A second similar course was started on July 5, the fifth injection of 0.3 g. neoarsphenamine being given on the 19th. There had previously been no toxic reaction of any kind, and the eye lesions were slowly improving.

On July 20 he complained of malaise and frontal headache, which lasted until the next day, when he developed epileptiform convulsions. The aura (elicited on later questioning) consisted of "spots before the eyes." He fell on to his back, uttered a cry, and became unconscious. He then developed generalized spasticity with opisthotonos, and became deeply cyanosed. This stage lasted about a minute. It was followed by generalized clonic movements lasting 4 minutes and accompanied by severe tongue-biting and incontinence of urine and faeces. Consciousness was regained after 30 minutes, but he had no recollection of the attack except for the aura. Six similar convulsions occurred during the night, and between these he remained semicomatose and vomited profusely. He was first seen by us while he was having these fits, and thereafter was under our care.

On examination (July 21) the patient was comatose. All tendon reflexes were absent, and the abdominal reflexes could not be elicited. There was a bilateral extensor Babinski response, but no ankle or knee clonus. There was no neck rigidity or Kernig's sign. He had a conjugate deviation of the eyes to the right; the right pupil reacted to light, but the left pupil was dilated under the therapeutic influence of atropine. The blood pressure was 135/90. No physical signs were found in the other systems. The urine contained no albumin, sugar, or acetone bodies. There was no evidence of purpura, other skin lesions, or jaundice. On lumbar puncture the C.S.F. was under 90 mm. pressure; there was no spinal block and the fluid was clear and colourless; 2 lymphocytes per c.mm., 170 mg. protein per 100 ml., 708 mg. chloride per 100 ml.; Lange curve, 0123555544; culture sterile; Wassermann reaction negative. The blood sugar was 117.6 mg. and the blood urea 47.1 mg. per 100 ml. The haemoglobin was 110%, R.B.C. 6,000,000, W.B.C. 11,600 (polymorphonuclears 71%, lymphocytes 23%, monocytes 6%). No malarial parasites were found in the blood on thick and thin films.

A provisional diagnosis of arsenical encephalopathy was made, and treatment was adopted on the lines suggested by Ransome *et al.* (1945). They stress the prevention of cerebral oedema by postural nursing by keeping the patient's spine erect, repeated lumbar puncture, calcium thiosulphate, calcium gluconate, vitamin C, and adequate fluid intake. Our patient was sat up in a vertical position, given 1 ml. of adrenaline (1 in 1,000) and 1 pint (568 ml.) of 20% glucose by slow intravenous drip in an attempt to prevent cerebral oedema. Calcium thiosulphate 0.6 g., 10 ml. of 10% calcium gluconate, and 500 mg. of vitamin C were each given intravenously at 6-hourly intervals for the first day and then daily. Fluids were given *ad lib.* by an intranasal Ryle's tube.

The next day (July 22) the coma gradually deepened and he became cyanosed. There were no signs of congestive heart failure, and venesection was not indicated. Continuous nasal oxygen was given. On the 23rd he was sweating profusely and in deep coma. There were slight neck rigidity and a doubtful Kernig's sign on the right. He had marked twitching of the right arm and leg, and the extensor responses were still present. The temperature had risen to 104° F. (40° C.). One pint (568 ml.) of isotonic glucose-saline was given by slow intravenous drip to combat slight dehydration. Lumbar puncture was repeated. The C.S.F. was clear and colourless, and the pressure was 90 mm. There were 7 cells per c.mm. (equal numbers of polymorphs and lymphocytes), and the protein was 110 mg. per 100 ml.; Lange curve, 0123455433; chlorides, 727.5 mg. per 100 ml.; culture sterile.

On the 24th the coma was much deeper, the cyanosis more marked (despite oxygen therapy), and he was breathing stertorously. The pupils were fixed to light, and there were slight neck rigidity and a bilateral slight Kernig's sign. All deep tendon reflexes were absent, and there was still a bilateral Babinski response. The temperature had risen to 105° F. (40.6° C.), where it remained until his death early on the 25th.

Necropsy was performed by Prof. P. L. Sutherland, who reported that the cerebral convolutions were slightly flattened and the superficial cerebral vessels congested. The ventricles of the brain contained a little blood-stained fluid and the choroid plexuses were deeply congested. Numerous petechial haemorrhages were found on the visceral pleura of both lungs, and there were signs of a terminal bronchopneumonia. The liver and kidneys were normal in appearance and also histologically. Histological examination showed slight thickening of the pia mater. The vessels of the basal ganglia were unduly prominent and some appeared to be thrombosed. There was slight focal demyelination, but no other evidence of cerebral lesions. Obermiller (1913) and Stühmer (1919) state that there may be no pathological changes in arsenical encephalopathy other than cerebral congestion and oedema. The characteristic lesion, however, in this condition is multiple plugged capillaries with petechial haemorrhages and surrounding necrosis and demyelination (Russell, 1937; Strauss and Globus, 1930; Alpers, 1928).

Differential Diagnosis

We consider this case to be one of arsenical encephalopathy, for the following reasons. There was no personal or family history of epilepsy; there was no previous evidence of cerebral syphilis, and it is very unlikely that he would develop the first signs of this after starting treatment with penicillin and arsenic and in the presence of a negative C.S.F. Wassermann reaction. The blood pressure and blood urea were normal and there was no albuminuria, thus eliminating hypertensive encephalopathy and uraemia. The blood sugar was normal, and there was no glycosuria or acetonuria, ruling out diabetic coma or spontaneous hypoglycaemia. The patient did not have any other

drugs apart from arsenic and penicillin. There was no history of malaria, and the blood films proved negative for plasmodia.

Discussion

There are several interesting and unusual features about this case. (1) Very few cases of arsenical encephalopathy in congenital syphilis can be found in the literature. (2) He was given a short course of systemic penicillin prior to arsenical therapy. (3) He had 15 injections of 0.3 g. neoarsphenamine (i.e., a total dosage of 4.5 g.) before the onset of cerebral symptoms. According to Glaser *et al.* (1935) only one case is recorded in the literature in which 15 injections had been given before the onset of encephalopathy, and only 6% of all recorded cases had received a total dose of more than 2 g. of organic arsenicals. In over 75% of recorded cases the encephalopathy occurred before the fifth injection. Our case supports the now overwhelming evidence that arsenical encephalopathy is not a Jarisch-Herxheimer reaction but due to a hypersensitivity to organic arsenicals. (4) Death usually occurs within 48 to 72 hours of the onset of symptoms, whereas our patient survived over four days.

The treatment adopted was that advocated by Ransome *et al.*, which they used with success in all of their 5 cases, in a condition which has an average mortality of 76% (Glaser *et al.*, 1935; Kinnear Wilson, 1940). Our patient, however, did not respond, and died in coma on the fifth day of the disease.

Summary

A case of arsenical encephalopathy is recorded. The patient was a congenital syphilitic with interstitial keratitis and iridocyclitis, and was being treated with penicillin and neoarsphenamine. Treatment on the postural basis of Ransome *et al.* was instituted, but did not succeed in saving the patient's life.

We wish to express our gratitude to Dr. H. H. Moll, consultant physician; Mr. George Black, consultant ophthalmologist; Prof. P. L. Sutherland, consultant pathologist; to our colleagues for their co-operation in the investigations, and to Dr. R. A. Russell Taylor for permission to publish this case.

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Medical Memoranda

Compound Gridiron Approach to the Appendix in Difficult Cases

Sooner or later every surgeon encounters the long retrocaecal appendix which is firmly fixed the whole way from its base in the right iliac fossa to its apex in the region of the hepatic flexure of the colon, and where normal incisions give inadequate access. I have found the following technique invaluable in such cases.

The usual McBurney incision is used in the first place, and when the above condition is revealed the subsequent procedure is as follows: (1) extend the skin incision up towards the loin; (2) split the external oblique muscle fibres to the limit of the incision; (3) split the internal oblique and transversalis muscles in the line of *their* fibres at the upper end of the wound; and (4) open the peritoneum in the above situation. The wound thus consists of the extended incision through the skin and external oblique muscle in the line of its fibres, and the double split in the internal oblique and transversalis muscles in the line of their fibres at the upper and lower extremities of the wound, with a peritoneal opening deep to each of the latter. The distal part of the appendix is then easily freed via the upper opening and the proximal part through the lower; the whole organ can then be delivered safely through the lower opening. The peritoneum and muscles are subsequently closed in the usual manner.

This approach has the following advantages: (1) the appendix is adequately exposed; (2) it causes the minimum of trauma; (3) the added access is easy and avoids cutting of muscle; (4) healing is good and the scar is sound; and (5) the area can be drained, if necessary, via the lower grid without fear of breakdown of the whole wound.

Oxford. J. HUGHES, F.R.C.S.

A Rare Cause of Foetal Death

The following case of intrauterine death may be of interest owing to the rarity of the cause.

CASE HISTORY

A primipara aged 24 was admitted to hospital at 4.15 p.m. on Feb. 25, 1946, with a history of ruptured membranes at 9.30 the previous evening. The expected date of delivery was March 11. The fundus was 38 weeks, with the vertex presenting (left occipito-anterior). The head was high and freely ballotable. The foetal heart was distinctly heard and was quite regular. There was no oedema or albuminuria. The blood pressure was 120/80, the temperature 97° F. (36.1° C.), and the pulse 84. She was not having pains, nor did she have pains before or after the rupture of the membranes. She was a booked case, and had attended the routine antenatal clinics regularly. Her external measurements were: interspinous 9½ in. (24 cm.), intercristal 10½ in. (26.5 cm.), external conjugate 7½ in. (19 cm.). Owing to the non-fixation of the head she had been put down for a trial of labour.

Progress.—On the night of Feb. 25 the patient was rather restless and complained of not being able to sleep, so she was given phenobarbitone, 3 gr. (0.2 g.). The liquor was draining freely. She slept well through the night. Next morning she was given 1½ oz. (42 ml.) of castor oil, and a tight binder and pads were applied to the abdomen. Throughout the day the patient remained comfortable and did not complain of pains. Abdominal examination in the afternoon showed the head to be in the same position as on admission. At 8.15 p.m. she suddenly had a bright-red loss and passed some large clots, and pains began. Bleeding continued with each pain. The foetal heart was auscultated and was still quite audible and regular. Examination was made per vaginam; the os was two-fingers dilated, the head was reached, and no placenta was palpated. A tentative diagnosis of high lateral placenta praevia was made. At 10.40 p.m. the foetal heart became difficult to hear. The baby's condition was explained to the patient and she was told that even with a caesarean section the chances of delivering a live infant were very problematical. She and the relatives decided for an immediate operation in the baby's interests. The mother's condition was very good; pulse strong and regular, rate 90. A lower-segment caesarean section was performed under spinal anaesthesia. At operation the lower segment was thin, and the line of demarcation between it and the upper segment was well marked. A stillborn male infant was extracted. The placenta was situated in the fundus uteri; it was removed, together with the membranes, without difficulty.

Findings.—After the operation the baby and placenta were examined. The infant was 7 lb. 12 oz. (3.5 kg.) in weight, 20 in. (50 cm.) long, and appeared to be normal. Attention was next directed to the afterbirth, and it was then seen that the umbilical cord was inserted outside the placental margin, and numerous large vessels were running beneath the amnion, entering separately into the placental margin—that is, a velamentous insertion of the cord. Furthermore, it was discovered that these vessels were lying between that part of the membranes situated in the lower uterine segment. The rupture of the membranes had taken place along the line of one of these vessels, and about 3 in. (7.5 cm.) from the placental margin a small tear was found in the wall through which blood was still exuding. The cause of the foetal death was now obvious.

It would appear that in cases of ante-partum haemorrhage with no toxaemic signs or demonstrable placenta praevia, even this rare anomaly should be borne in mind.

I am indebted to Dr. C. B. Crane, M.O.H. for York, for permission to publish this note.

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Reviews

CHEMISTRY OF MICRO-ORGANISMS

An Introduction to Bacteriological Chemistry. By C. G. Anderson, Ph.D. Second edition. (Pp. 500. 20s.) Edinburgh: E. and S. Livingstone. 1946.

The Society for General Microbiology, the youngest association of bacteriologists in this country, has since its inauguration in the beginning of 1945 attained a membership of over 550, comprising workers in the fields of medical, veterinary, agricultural, and industrial bacteriology. At a recent symposium it was made abundantly clear that these workers, attacking their various problems from their own standpoints, were inspired by a common desire for fundamental knowledge of the mechanisms by which bacteria and the lower fungi live and produce their effects. Much of this knowledge has been obtained by the study of bacterial enzymes and fermentation products, of factors essential to the growth of bacteria, and of components obtained from organisms by chemical fractionation. The advances of the last ten years have been striking, and it is therefore an appropriate time for the appearance of a second edition of this useful volume.

The 500 pages of the book represent an increase of some 220 pages on the first edition, an increase largely accounted for by new chapters dealing with antibiotics and chemotherapy and by considerable expansion of those sections describing the advances in enzyme chemistry and bacterial nutrition which have made possible a rational approach to the practical problems of disinfection and treatment. Part I is devoted to a general account of the physicochemical properties of bacteria and fungi. Part II, the main section of the book, on bacterial metabolism, includes in addition to the work already mentioned descriptions of the mechanisms and products of fermentation and accounts of the proteins, polysaccharides, lipoids, and pigments of micro-organisms. Part III contains a short account of certain aspects of immunochemistry. In place of a detailed bibliography the author gives at the end of each chapter references to selected monographs and reviews. This book, carefully planned and clearly printed, succeeds well in its object of presenting a concise survey of a widening field. It is likely to find a place close to the hand of most bacteriologists.

JUVENILE SKIN DISEASE

Skin Diseases in Children. By George M. MacKee, M.D., and Anthony C. Cipollaro, M.D. Second edition, revised and enlarged. With contributed chapters. (Pp. 448; illustrated. 37s. 6d.) London: Hamish Hamilton Medical Books.

Although revised and enlarged this handbook on skin diseases in children preserves its original characteristics. Most of the usually described dermatoses are included, and there is nothing much in the text to distinguish it from a textbook of skin diseases not limited to the first decade or so of life. The chief omissions are senile pruritus and the cutaneous epitheliomata, which, while prone to attack the ageing dermis, are hardly known to affect children. The authors have, however, found room for a brief notice of the sarcomata, which are not quite so rare at this epoch. But on the whole there is very little real distinction to be drawn between the dermatoses of childhood and those of more advanced years, and it is rather an artificial classification to try to separate them off from the main body of cutaneous disease. However, if we accept the authors' objectives we must admit that they have produced once more a good account of their subject.

As is proper in a book devoted to juvenile skin disease a great deal of space is taken up by the discussion of atopic dermatitis and eczema in childhood. To a certain extent the authors appear to be obsessed by patch tests; but it seems difficult to understand their importance when it is stated that a positive skin test does not necessarily prove that a particular atopen is the causal agent, while, as is well known, a negative reaction does not exclude it. Another disease, acne vulgaris, the bugbear of adolescence, is also fully dealt with. Much importance is attached to restriction of diet; and after reading the formidable list of foods which are to be avoided by acne patients one may feel the consolation that acne ought to be becoming rare in this country, for the list comprises practically all the articles of diet which, owing to the war and its consequences, are regrettably scarce to-day.

We must once more comment on the excellence of the illustrations—almost all photographic reproductions. There is no doubt of the advance in photographic technique in the last twenty years, and it is fully reflected in the improved illustrations of many medical works; perhaps dermatological subjects have profited more than other branches of the art. In this particular work there is only one coloured plate—the frontispiece—and it cannot be said that it compares favourably with the monochromes. The quality of light and shade and modelling obtained in the ordinary straight photograph is still superior to that in reproductions in colour.

NEUROLOGICAL SURGERY

The Principles of Neurological Surgery. By Loyal Davis, M.S., M.D. Third edition, thoroughly revised. (Pp. 540; illustrated. 37s. 6d.) London: Henry Kimpton. 1946.

It is already well known that this book presents to the student or to the tyro in neurosurgery all that he needs to know of a rather specialized subject, and moreover that it makes enjoyable reading. When looking through the third edition, therefore, we turn to subjects upon which views have changed or new knowledge has been added in recent years, and we find the same well-balanced, level-headed summing up of the opinions and practices at the present day, and the same nice judgment about the amount that the student needs to know in order to enable him to understand the processes of disease and to recognize the cases which demand expert attention, without making any attempt to turn him into an expert or to force upon him the over-enthusiasm of the specialist. These remarks apply particularly to the sections on intracranial abscess, aural vertigo, spinal cord injury, herniation of the intervertebral disks, peripheral nerve injuries, and essential hypertension.

The surgery of the nervous system terrifies many a student, because he is given to understand that the field is so vast and the problems are so intricate that it is a hopeless task—he is defeated before he attempts to attack it. This book, which includes within its 540 pages the essentials of the anatomy, physiology, and surgery not only of the central nervous system but of the peripheral and autonomic nervous systems also, should give him hope and encouragement in making the attempt, and will certainly give him a grasp of the subject, if not an active interest in it, as the reward for his study of its contents. The work remains a splendid testimony to the author's wide experience, sound judgment, and literary skill.

HANDBOOK ON SOCIAL WELFARE

Health and Social Welfare. (Pp. 528. 25s.) London and New York: Todd Publishing Co., Ltd. British distributors: George G. Harrap and Co., Ltd.

The publishers say they are more confident than ever that this, the third issue of their handbook, "adequately fills a very real need in the equipment of all engaged in any of the many branches of social service." There is no doubt that the number of potential users of such a book is rapidly growing, and they are not likely to be disappointed when they turn to it for help. Section 5, Unofficial Statements, of this handsomely produced volume begins with the Association of Occupational Therapists and ends with the "Y.W.C.A." Full lists under the several Ministries are given of officially appointed committees and reports. There is a very useful section on careers in health and social welfare, a directory of organizations interested, a section on statistical tables, and finally a "Who's Who" in health and social welfare. Much out-of-the-way information is given which otherwise would have to be sought at the expense of considerable time and trouble.

Lord Horder, who is the advisory editor, asks in a foreword for the help of readers in making the book more useful in future, and it is with this intention that the following suggestions are made, based on many dips into its pages. In the list of periodicals devoted to the subject there is no mention of the *National Insurance Gazette*, which for many years has been the only journal devoted to the problems of the administrators of national health insurance. The Cremation Society

is not mentioned. Though there are many references to societies and institutions for the deaf and dumb, there is no help given to those who are asked by deaf people how to get honest and disinterested advice on hearing aids. It would be useful to have, if only in a line, some indication of the scope of some of the lesser-known bodies that are listed—for example, the British Health Freedom Society, the Health Practitioner's Association, and the London Health Centre.

There is a valuable summary of health and social welfare legislation and policy written in a severely objective manner and with artistic use of meiosis. In the reference to the new National Health Service it is said that "much of its content and direction will in future be determined by regulations," and in the section on careers the undoubtedly safe statement is made that "the public service will absorb an increasing number of doctors when the Government's national health policy is implemented."

We give this handbook a cordial welcome, for it seems to fill a gap in the long line of reference books. Time alone will show whether the faith of its publishers is shared by those in whose service it is offered, or how far the growth of State control will diminish the number of voluntary bodies whose objects fill so much of the book.

ELECTRICAL CONVULSION TREATMENT

L'Electro-Choc et la Psycho-Physiologie. By Jean Delay. (Pp. 169. 230 francs.) Paris: Masson and Cie.

The author attempts to formulate a neuro-physiological theory of the action of electrical convulsion treatment on human physiological processes in health and disease. He begins by discussing the clinical features of mania, melancholia, and hebephrenia and their physiological interpretation, and focuses attention on the hypothalamus as the main centre of disturbance of function. All the effects of electrically induced convulsions on consciousness, on neurovegetative functions, and on the vagal-sympathetic balance are then discussed. Small numbers of patients have been studied experimentally in an intensive way; and the results of the findings are to show that after convulsion there are changes in blood pressure, in gastric acidity, in the concentration in the blood of sugar, protein, total lipoids, calcium, and phosphorus, a reduction in the alkali reserve, leucocytosis, and changes in the electroencephalogram. The changes vary with the time of observation after the convulsion, and are interpreted as showing first a vagal stimulation, succeeded and overborne by powerful sympathetic excitation which is itself followed by a mild but more prolonged vagal effect. These physiological changes are then related theoretically to the therapeutic effects obtained in the convulsion treatment of the affective and schizophrenic psychoses.

The book is heavy reading, since it is written in a discursive style, and the author at no point presents his findings and arguments in summarized and self-contained form without their being overloaded with discussion. The discussion is, however, often of great interest. There is a wealth of clinical as well as experimental observation, and extensive references to the very large literature relevant to the subject. Much that is said is controversial, and no doubt some of the views expressed will demand revision in the light of later findings. Nevertheless the book is important as the first attempt at a synthesis of the present state of our knowledge of the pathology and therapeutics of the functional psychoses.

The handbook for students and practitioners entitled *Pulmonary Tuberculosis*, by Drs. R. Y. KEERS and B. G. RIGDEN, was favourably noticed in our issue of June 2, 1945. In preparing a second edition (Edinburgh: E. and S. Livingstone; 17s. 6d.) the authors have refrained from enlarging the scope of their work, and it can be recommended once again as a concise and up-to-date account of the subject. The increasing use of pneumoperitoneum as a method of treatment has called for more extensive reference to that procedure, and the section on B.C.G. has been expanded in view of the latest reports from Scandinavia and the influential demand for its trial in Britain. The passage into law of the Disabled Persons (Unemployment) Act, 1944, has been a landmark in the history of rehabilitation, and the provisions of the Act are explained.

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*]

The Common Cold and How to Fight It. By N. D. Fabricant, M.D. (Pp. 118. 4s. 6d.) London: Macdonald. 1947.

An account for the lay reader by an American E.N.T. specialist of methods to prevent the common cold.

Contraception. By Marie C. Stopes, D.Sc. Sixth edition; revised. (Pp. 491. 30s.) London: Putnam. 1946.

The author discusses in this well-known book all methods of contraception, their history, and relevant legal problems.

The Development of Inhalation Anaesthesia. By Barbara M. Duncum, D.Phil. (Pp. 640. 35s.) London: The Wellcome Historical Medical Museum (Geoffrey Cumberlege). 1947.

A historical survey of inhalation anaesthesia from the earliest experiments to the present day. Many illustrations.

Clinical Practice in Infectious Diseases. By E. H. R. Harries, M.D., and M. Mitman, M.D. (Pp. 679. 22s. 6d.) Edinburgh: Livingstone. 1947.

This book is intended for students and practitioners. Some recent additions are a new chapter on the pneumonias, an enlarged account of penicillin, and notes on streptomycin and congenital defects in infants following rubella in the pregnant mother.

Diseases of the Nervous System. By F. M. R. Walshe, M.D., F.R.C.P., F.R.S. (Pp. 351. 16s.) Edinburgh: Livingstone. 1947.

In the fifth edition of this well-known textbook the author has recast the chapters dealing with intracranial tumours and cerebral vascular disease.

At Home with Income Tax. By R. W. Harris. (Pp. 178. 6s. 6d.) London: Stone and Cox. 1946.

An exposition of the income-tax laws for the layman, with illustrative cases.

A Practical Handbook of Psychiatry for Students and Nurses. By L. Minski, M.D., F.R.C.P. (Pp. 128. 6s.) London: Heinemann. 1946.

A simple scientific account of psychiatry with clinical descriptions and chapters on personal and occupational therapy.

The Annual Charities Register and Digest. (Pp. 497. 10s. 6d.) London: Longmans, Green. 1947.

A classified register of charities in or available for the metropolis.

First Baby. By W. de Kok, M.R.C.S., L.R.C.P. (Pp. 126. 7s. 6d.) London: John Westhouse. 1946.

A simply written account of how to care for the baby; for the layman.

Burma Surgeon Returns. By G. S. Seagrave, M.D. (Pp. 205. 10s. 6d.) London: Victor Gollancz. 1946.

An account of the medical problems in the Burma campaigns by an American doctor who took part in them.

Philosophy and Medicine in Ancient Greece. By W. H. S. Jones, Litt.D., F.B.A. (Pp. 100. $2.00.) Baltimore: Johns Hopkins Press. 1946.

Section 1 contains an account of the pre-Hippocratics and Plato, Section 2 of Greek thought and medical etiquette, and in Section 3 are the text and translation of *Ancient Medicine*, by Hippocrates.

Characterisation of Organic Compounds. By F. Wild, M.A., Ph.D., F.R.I.C. (Pp. 306. 18s.) Cambridge: University Press. 1947.

Summarizes methods of identifying organic compounds; for students and research workers.

Anaesthetic Methods. By G. Kaye, M.D., R. H. Orton, M.B., and D. G. Renton, M.B. (Pp. 706. 50s.) Melbourne: Ramsay. 1946.

An introductory textbook on anaesthesia intended especially for postgraduates.

Infectious Diseases. By A. B. Christie, M.A., M.D., D.P.H. (Pp. 324. 12s. 6d.) London: Faber and Faber. 1947.

An account of all aspects of infectious diseases, including their management and control; for nurses.

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RETURN TO NORMAL

Because of the fuel crisis we were prevented from issuing the last two numbers of the *B.M.J.* in the normal manner. The result has been a severe dislocation of work. The publication of many articles and of other matter has had to be postponed. An attempt will be made during the next few issues of the *Journal* to make good the loss of space incurred, but even then many correspondents will have to be disappointed. We are confident, however, that readers will appreciate the difficult position in which the *Journal* has been placed and realize that the return to normal will have to be a gradual process.

When it was found to be impossible to make alternative arrangements for printing the *Journal* in parts of the country not at first brought under the fuel ban the possibility was looked into of bringing out the *Journal* in duplicated form. The Secretary of the B.M.A. put at the disposal of the Editor the services of his staff and duplicating machines. By restricting the size of the last two issues of the *B.M.J.* to two sides of a foolscap sheet it was possible to "print" the normal run of approximately 62,000 copies. A draughtsman in the Finance Department cut the title and the *Journal* device on the stencils. Our two pemmican issues were, in fact, entirely a home product and were brought out by the co-operative effort of all departments in B.M.A. House. As the electricity was cut off from the addressograph machines a treadle mechanism was brought into use and the 62,000 envelopes addressed by human foot-power. So the two pemmican *B.M.J.s* came out without the consumption of a watt of electricity. In spite of this, as readers by now probably know, exception was taken in certain quarters to the issue of the *B.M.J.* in any shape or form, even though no fuel and power were used. This extraordinary state of affairs was a symptom of a social malaise which those responsible for producing the *Journal* felt it their duty to resist. *Science To-day*, the *Isis*, and the *Liberal News* were apparently the only other journals which appreciated the fact that there was no legal bar on the production of a journal. The fact that the rest of the periodical Press succumbed weakly to what was nothing more nor less than temporary censorship seems to suggest that this country has lost some of that initiative and enterprise supposed to be characteristic of the British people. The queue habit seems to have got a firm grip upon us, and the readiness with which editors and proprietors of various journals lined up in the queue shows a strange lack of resourcefulness in a profession in which this quality is usually in high demand. We would like to thank those readers who have appreciated the fact that the *Journal* was not bluffed into inaction. We publish in this week's Correspondence pages a few of the many letters we have received.

PREFRONTAL LEUCOTOMY

The Board of Control report[1] on prefrontal leucotomy marks a stage forward in the establishment of this method of treatment in its proper place in psychiatry. The report gives a comprehensive survey of the results of treatment at many centres, as judged by many observers and dispassionately discussed. Many difficulties, in shortage of staff and otherwise, had to be contended with and rob the factual data of some of their value, for it is clear that while some centres sent in detailed accounts of individual patients others reported only in the baldest terms. An inquiry form was issued to every county and borough mental hospital and registered hospital, and to most of the licensed houses. Completed returns were received from all the hospitals which had undertaken the treatment up to the end of 1944. It is of interest that these included one-third of the total of 97 mental hospitals and 6 of the 13 registered hospitals; this shows how widespread the use of the method has already become.

The report analyses the results in 1,000 patients, 348 males and 652 females. Of these the largest single group were the schizophrenics—599 cases. It was not possible to subdivide these by diagnosis into paranoid, catatonic, and hebephrenic types, which would have been a matter of great interest. After the operation approximately 5% of them died, and 25% could be discharged from hospital; the others had to remain in hospital, 36% of them in an improved state. Of the whole group over 60% could be regarded as improved, and 16% were counted as recovered. There was a small relapse rate, amounting to no more than 4% of the total material. Considering the gravity of the disability in these patients, mostly chronic cases in which no other method of treatment offered any hope at all, the results are encouraging. They were still better in the 250 manic-depressive patients, in whose number an unknown proportion of involutional melancholics are included. Of them 8% died, but nearly 80% were improved. Over half could be discharged from hospital and 45% were regarded as recovered. A miscellany of other conditions had also been treated, including epilepsy, mental defect, and post-encephalitic states. In them the results were less striking, except in the obsessional neuroses; of the 29 obsessional patients 2 died, 1 failed to improve, and 23 were discharged from hospital, 17 of them being counted recovered. These findings support the results observed by many individual workers in the past. Of all chronic and incapacitating psychiatric conditions the severe obsessional neuroses respond best to leucotomy, the affective psychoses next best, and the schizophrenias, though favourably on the whole, least well.

There are some interesting correlations with age and sex. On the whole the men did rather better than the women in both schizophrenic and manic-depressive groups, and the

[1] *Pre-frontal Leucotomy in 1,000 Cases*, Board of Control (England and Wales). H.M.S.O., London, 1946.

older age-groups had better discharge rates than the younger. In both the two large diagnostic groups the discharge rates for men are strikingly higher than for women over the age of 35. The duration of the illness is also shown to be of prognostic importance. The proportion of patients discharged recovered or improved after leucotomy in the first two years of the illness is very much higher than when the operation is performed later on. In the schizophrenics the rate drops from 56% and 47% in the first two years to 20% in the next three; in the manic-depressive group the rate falls off much more gradually from 74% and 59% to 47%. However, both in the schizophrenics and manic-depressives there is a discharged improved rate of about 10% even in patients who have been ill for ten or twenty years. These figures show that there is much that is still to be learned about the indications for treatment in chronic psychotic conditions.

The report goes on to give an analysis of the results considered in terms of social behaviour and symptoms. Under the first heading a considerable proportion of patients were classified as citizens—i.e., earning their living, managing their homes, or otherwise taking a normal place in the community. For the grave disabilities which have been treated by leucotomy this represents a high standard of recovery. Nevertheless 24% of all patients together reached this standard—16% of the schizophrenics, 43% of the manic-depressives, and 55% of the obsessionals. High standards of improvement were obtained in respect of violence, difficult behaviour, and working habits, and in only 1% of the whole thousand could the symptoms be called worse after than before the operation. Some symptoms are much more responsive to treatment than others; suicidal tendencies, depression, and agitation were abolished in over 70%, hallucinations, delusions, and excitement in only 20–37%. The occurrence of new symptoms after operation was infrequent; post-operative epilepsy was seen in only 3%. An attempt is made to answer the question whether there are changes in personality after the operation, but the data are insufficient.

The conclusions drawn are that the operation is a simple one for the patient, and the death rate not high when the seriousness of established mental disorder is taken into account. There is remarkable improvement in behaviour in a large percentage of severe cases with poor prognosis. Further study is required to decide whether the results are achieved at the cost of the loss of some finer mental qualities. The operation should be carried out only after careful consideration of each individual case by experienced psychiatrists.

The benefits which result from leucotomy in successful cases underline our present ignorance of principles of selection. Patients have not been generally as closely studied both before and after operation as could be desired; and it is hoped that opportunities in this way will be better used in future. At least two intensive surveys are now proceeding which should add much to our knowledge in this field. But it would be unfair not to admit that the substantial proportion of chronic and otherwise incurable patients whom it has proved possible to discharge from hospital after leucotomy means a great advance in treatment.

GROUNDNUTS IN EAST AFRICA

The present deficiency of fats in the national dietary exceeds 1,000,000 tons a year. The problem is to find fresh sources of supply to make this good. The Government have therefore launched a bold scheme for producing groundnuts in East and Central Africa[1] on 3,250,000 acres of barren land in Tanganyika, Northern Rhodesia, and Kenya. This will bring benefit to the inhabitants of this vast area as well as to Britain. The African economy is based primarily on subsistence agriculture conducted by the primitive method of the hand-hoe. The production by these primitive methods is probably already on the decline, and the welfare of Africans will depend upon their emergence from subsistence agriculture to modern methods made possible only by capitalized development. British and African needs can be met by this long-sighted scheme of the present Government. But unless the urgent problems of health and disease are satisfactorily solved the scheme will not work. Hospitals, village health centres, and community health centres are being planned for the benefit of the African native. It is to be hoped that among the many experts consulted the Government has not overlooked the anthropologist, because any system based on Western medicine will come up against the invisible and powerful obstacles provided by the African natives' primitive methods of thinking, as expressed in tribal medicine. Apart from such diseases as leprosy, syphilis, and malaria, there is the forbidding aspect of trypanosomiasis, for the area to be developed is the haunt of the tsetse fly. The clearing of an enormous area of uninhabited bush is in itself a stupendous task, but it becomes still more complicated when that bush is uninhabited because it is the haunt of tsetse flies infected with trypanosomiasis. If workers are to be brought in to cultivate groundnuts then it is essential first to eradicate the tsetse fly. That such can in fact be done has been amply demonstrated at Pong Tamale in the Gold Coast and on an even larger scale in the Anchau corridor in Northern Nigeria. In what has come to be known as the Anchau experiment sufficient time was available for preliminary examinations and surveys, the object being not only to clear tsetses from the area but to shift whole populations and at the same time rehabilitate them. Operations were begun in 1935 and only now are drawing to their close. In Tanganyika time presses. Yet here, also, expert knowledge is absolutely essential if correct measures are to be taken. Rapidity of action is one necessity in eradicating tsetse flies. Tsetses cannot live far from water. In the dry season they breed only in the bush which fringes rivers and streams, but during the rains they spread out from the river banks, often for considerable distances. When the dry season returns they retreat to the fringing forest, except for a few flies which continue to live in isolated thickets in the so-called hard-pan depressions, where there is enough moisture to provide the required microclimate. The work of clearing bush must necessarily be accomplished in the dry season, and the cut wood must be burnt quickly, for if stacks of brushwood

[1] *A Plan for the Mechanized Production of Groundnuts in East and Central Africa*, H.M.S.O., Cmd. 7030, Feb., 1947. 1s. net.

remain till the rains descend ideal breeding-places are provided. Then, too, expert botanical knowledge must be at hand to determine which species of trees must be cut and which may be allowed to remain. In East Africa the tsetse *Glossina morsitans*, for instance, breeds in close association with *Isoberlinia-Brachystigia* woodland (Nash[2]); but *G. swynnertoni* and *G. palpalis* have different habitats, and selective bush clearing may fail to eliminate *G. swynnertoni* (Bax[3]). If too much vegetation is removed from the banks of rivers and streams tropical downpours may all too readily cause extensive scouring and soil erosion.

Once tsetses have been eliminated in the selected areas in Tanganyika new villages will have to be built to house the groundnut farmers, new wells will have to be sunk, and new farms created in which mixed farming can be carried on, for adequate diet is essential if the African is to develop his full capacity for work. Fortunately, even though conditions in East and West Africa are not identical, in the Anchau experiment a large-scale model is available to indicate what must be aimed at. As the scheme is put into operation there should be many opportunities for intensive and valuable research. It should be possible, for instance, to determine whether pentamidine is really of value as a prophylactic against sleeping-sickness and to ascertain the best tsetse repellent for use by those engaged in clearing infested bush. Pyrethrins[4,5] and indalone[6] are known to have some action in deterring that most persistent of insects, the tsetse fly, from biting, but further investigations are required to ascertain how far the action of these repellents is destroyed by sweating and exposure to sunlight.

The whole Tanganyika project entails the application of preventive tropical medicine on a scale never before attempted in Africa. If proper precautions are taken the outcome of the project should be to provide essential fats and oils for starving Europe and to ensure for many thousands of Africans a better and a healthier way of life.

THE HEART AND BERIBERI

A recent article entitled "Cœur et Béri-Béri," by Dr. Jean Casanova,[7] is probably the most complete mass observation of this condition that has been made. The disease appeared in epidemic form among black Senegalese troops stationed on the Tunisian and Tripolitanian frontier in 1940. Their diet was poor, their work heavy, and more than 300 cases came under observation. It was found in general that cardiac cases with frank oedema, and those partially cured or relapsed oedematous patients with asthenia, nervous symptoms, and mild cardiac disorders only, responded rapidly and uniformly to vitamin B therapy. On the other hand, cases that from the time they were first seen were considered to be of the "dry" type showed marked cardiac lesions which did not respond to therapy and were usually fatal. It was uncertain whether this group represented relapses from previous oedematous cases or whether they were affected by some other vitamin deficiency in addition to that of B_1; unfortunately it was impossible to carry out extensive biochemical examinations.

Sporadic cases with cardiac symptoms similar to those Casanova describes have been recorded by a number of observers, but it has not always been possible definitely to determine that the condition was beriberi, and the recognition of this large group arising in the middle of an epidemic would appear to be a clinical observation of the first importance. It seems hardly correct to label them as the "dry" form, for peripheral neuritis, for example, was absent. A better term would appear to be "subacute cardiac" beriberi. There is considerable evidence that they are really cases of severe cardiac damage in patients suffering from the disease in a chronic subacute form in which the brunt of the attack is borne by the heart muscle. Casanova's investigations were carried out on patients of this last group. Clinically, nervous symptoms were rare and oedema when it occurred was confined to the tibial region. There was no marked change in the general appearance, and the patients usually complained of lack of appetite and a sense of constriction in the chest. Examination revealed violent and striking pulsation in the epigastric region, praecordium, and neck; a Corrigan type of pulse; tachycardia aggravated by the slightest effort and a very poor exercise tolerance. The blood pressure was raised in proportion to the rate of the heart beat. Radiologically there was the gross right-sided cardiac enlargement which takes place in this condition, and very striking pulsation in the pulmonary conus and the aorta.

More important, however, were the results of the electrocardiographic examinations. There was no absolute uniformity about these tracings, but, generally speaking, the P waves were accentuated and sometimes distorted; the P–Q interval was increased; and there was a widening of the QRS complex and various inconstant alterations in the T wave. The general indications were of a sinus tachycardia and marked impairment and delay in the passage of the cardiac impulse through the ventricles. The ventricular contractions were often asynchronous. Although the systolic phase is always lengthened in consequence of these changes, the pulse remains rapid by reason of a shortened diastole. The response to digitalis of hearts of this type is peculiar in that administration of the drug increases the pulse rate—a finding which was regarded by Casanova as diagnostic. It was also noted that in two cases which had jaundice the pulse rate was temporarily lowered and the patient improved, but when the jaundice disappeared rapid deterioration set in and death followed. The biochemical investigations were scanty, but in the few cases examined the serum albumin was remarkably high, while the globulin was approximately normal. No detailed post-mortem notes are included in this paper.

A recent paper by Allibone and Baar[8] describes a fatal relapsing case of beriberi occurring in a child in this country. The main clinical features were again noted in the heart, and at necropsy the heart muscle showed "such changes as would be expected if a typically acute beriberi heart as described by Wenckebach[9] were to survive for a longer period." Just as in Casanova's cases, there was resistance to vitamin therapy, sinus tachycardia, large distorted P waves (but in this case the P–Q interval fell within normal limits), and the T wave was absent. The serum albumin was actually lowered, however, and it is clear that

[2] *Farm and Forest*, 1944, **5**, 8.
[3] *Report on the Work of the Tanganyika Tsetse Research Department since February*, 1944. 12 pp.
[4] Hornby, J. R., and French, M. H., *Trans. roy. Soc. trop. Med. Hyg.*, 1943, **37**, 41.
[5] Holden, J. R., and Findlay, G. M., ibid., 1944, **38**, 199.
[6] Findlay, G. M., Hardwicke, J., and Phelps, A. J., ibid., 1946, **40**, 341.
[7] *L'Algérie Méd.*, 1946, **3**, 203.
[8] *Arch. Dis. Childh.*, 1946, **21**, 76.
[9] *Das Beriberi-Herz.*, 1934, Springer, Berlin.

more information is needed on this point. The post-mortem findings are described in detail, with some excellent photographs, and it is interesting to note that in this case there was an aneurysm of the pulmonary conus, which contained a thrombus. Very full references to the literature are given at the end of this article.

These two papers should be read in full. They show with the greatest clarity how conditions associated with deficiency of the vitamin B complex may produce myocardial changes that are irreversible despite strenuous therapy, and they will prompt speculation as to how often obscure cases of cardiac enlargement and failure may arise from similar causes.

PATHOLOGY OF SUDDEN DEATH

The dramatic exit, while arousing our greatest sympathy for those so suddenly bereaved, is of considerable scientific and medico-legal interest, and it is rarely fully explained by morbid anatomy. Moreover, it may be preventable. To the physician sudden death usually implies an abrupt affair ; to the coroner it includes any death within 24 hours of a person's being taken ill unexpectedly. Published studies of the mechanisms involved, and of the underlying diseases responsible, are scanty and usually suffer from lack of adequate clinical data. A recent study of the morbid anatomy of 500 cases of "sudden heart death" by Munck[1] is no exception to this rule. Selection was unavoidable and tended to exclude women and very old people. Figures for sex and age incidence are therefore unreliable ; but valuable facts are given concerning sudden death in relatively young and middle-aged men. The term "sudden death" is not defined, but appears to be used in the wider sense of the coroner.

In the total series of 411 men and 89 women ischaemic heart disease was considered responsible for the death of 79.2%, syphilitic aortitis with stenosis of the coronary ostia for 11%, and valvular lesions for 3.6%. Pulmonary embolism, for which Barnes[2] held to blame for 2 to 5% of all deaths in hospital, was not mentioned, but may have been considered "non-cardiac." Dissecting aneurysm and spontaneous rupture of the aorta may have been excluded for the same reason. No case of diphtheritic carditis was seen.

On the whole the facts reported confirm what is already well established, though perhaps not widely known. Thus of 141 cases of coronary thrombosis 37 had neither myocardial infarction nor fibrosis, and 60 had fibrosis only. Of 74 cases with myocardial infarction, coronary thrombosis occurred in only 44. Clawson[3] recorded 281 cases of myocardial infarction of which 64 had no coronary thrombosis. Thus a clinical and electrocardiographic diagnosis of coronary thrombosis cannot be more than a good guess and should be discarded in favour of myocardial infarction. That there was sudden death in 79 cases (19.9%) of ischaemic heart disease without coronary thrombosis, myocardial infarction, or fibrosis, and in 142 cases (35.8%) with fibrosis only, is of greater interest ; for this comprises more than half the group and is contrary to hospital experience. The recorded heart-weights of these cases (245–880 g. ; average 450 g.) indicate that many were hypertensive as well. Clinical studies, according to Riseman and Brown,[4] usually reveal hypertension in about 50% of cases of ischaemic heart disease. That pure hypertensive heart disease very rarely terminates abruptly (6 out of 500 cases) is of medico-legal importance. The high incidence of aortic stenosis among patients with V.D.H. dying suddenly (10 out of 18) is in harmony with general opinion.

Perhaps the most important fact which emerges from these observations is that sudden death in the natural course of heart disease is due to myocardial ischaemia in over 92% of cases, usually from coronary atherosclerosis (79.2%), sometimes from syphilitic stenosis of the coronary ostia (11%), and occasionally from aortic stenosis (2%). This fact is not new but is emphasized. Death took place on exertion in a third, quietly at home in a third, and while performing gentle social activities in a third.

The mechanism is assumed to be ventricular fibrillation or asystole. As quinidine has been shown by Wegria and Nickerson[5] to protect the dog's ventricles from ventricular fibrillation, the prophylactic use of this drug in the types of heart disease mentioned should be considered.

NICOTINE AND FERTILITY

There are now in the literature several papers which show that nicotine when administered daily to animals over a period has some effect on fertility, as indicated by the occurrence of abortion, of premature births, of stillbirths, and of a decrease in the number of young born. There are also a good many reports on human subjects, though these are mostly less convincing than that of Phillips,[6] who established a relation between smoking and immotility of spermatozoa in a young man. When he stopped smoking motile sperms appeared ; when he resumed smoking motility disappeared ; when he stopped again motile sperms appeared again.

Thienes, Lombard, and their colleagues[7] have now described some experiments in which they have measured the fertility of rats injected daily with nicotine in comparison with that of control rats injected daily with saline. There were three experiments in which, taking the three together, 92 pairs of control rats were compared with 83 pairs injected with nicotine. Of the control pairs only 17% were not fertile over a period of nearly 12 months, while of the pairs injected with nicotine as many as 33% were not fertile. Not only was the percentage of non-fertile rats about twice as great in those injected with nicotine as among the controls, but the number of progeny was much less. Each control pair had on the average 28 young in the experimental period, while each pair receiving nicotine had only 19 young. The doses of nicotine were 2.0 to 2.5 mg. per kg. given twice a day, and were nearly as large as could be given without causing convulsions. Lombard[8] has pointed out that the relative daily dose injected into rats in these experiments would correspond to the maximum amount of nicotine which could be absorbed from 40 cigarettes. Lombard's estimate of the amount of nicotine absorbed seems excessive ; it would be difficult for the most determined inhaler to take in 7 mg. from one cigarette, and there is good reason to believe that a cigarette normally yields about one-tenth of this.[9] But Lombard assumes that the rat and man are equally sensitive, and again there is good reason to believe that man is much more sensitive to nicotine than the rat.[9] In the effect of nicotine on the hypothalamus, man is from 100 to 200 times more sensitive than the rat. Here then is an important addition to the evidence that smoking is far from being a harmless habit.

[1] *Acta path. microbiol. scand.*, 1946, **23**, 107.
[2] *J. Amer. med. Ass.*, 1937, **109**, 1347.
[3] *Amer. Heart J.*, 1939, **17**, 387.
[4] Ibid., 1937, **14**, 331.
[5] *Amer. Heart J.*, 1943, **25**, 58.
[6] *Hawaii med. J.*, 1943, **2**, 249.
[7] *J. Pharmacol.*, 1946, **87**, 1.
[8] *Chronic Nicotinism*, 1939, Thesis, Univ. S. Calif., Los Angeles.
[9] *British Medical Journal*, 1945, **1**, 403.

HOSPITAL PLANNING AT OXFORD

A Planning Committee of the Oxford and District Joint Hospitals Board has worked out a programme of area hospital planning. Sir Farquhar Buzzard presided over the committee until his death early last year, and since then Prof. G. E. Gask has been chairman of a committee of fourteen, half of whom are medical men. The planned area covers the city of Oxford and almost the whole county, with parts of Berkshire and Buckinghamshire, a total population of about 300,000. It is considered that the number of beds for acute sick cases should be 5 per 1,000 population, with half this number for chronic sick (the committee prefers to call them long-stay cases), and smaller numbers for cases of infectious disease, tuberculosis, convalescence, and maternity, the total—leaving out mental hospitals—providing for 1% of the population.

In considering the acute sick, allowance has to be made for the special position of Oxford as a teaching centre. The Radcliffe Infirmary, the Wingfield-Morris Orthopaedic Hospital, and the Oxford Eye Hospital receive patients from a wide area, and Oxford has to provide certain highly specialized services for the region as a whole. It is estimated that 453 new beds are needed in Oxford for the acute sick. At present about half the beds in the ten cottage hospitals in the district are used for the treatment of acute sick, but the committee is opposed to their continued allocation for that purpose and makes suggestions for using them to greater advantage.

The "Long-stay" Cases

All but a small minority of chronic sick or long-stay cases are accommodated in public assistance institutions, and the committee is unanimous in its opinion that these institutions are unsuitable for the nursing of such cases and that the accommodation they afford should be omitted from any summary of available resources. This means that some 700 beds in Oxford and Banbury and the surrounding areas are needed for such cases, all of them to be provided eventually in new buildings, some in new wards or blocks attached to general hospitals, and all of them in close association with such hospitals. Public assistance institutions are judged unsuitable also for maternity cases, for which at present they provide 43 beds, and the establishment of over 300 maternity beds is recommended, distributed between the key or primary centre at the Radcliffe Infirmary, the secondary centre at Horton General Hospital, Banbury, and a number of local centres at Abingdon, Didcot, and elsewhere. Sufficient beds for infectious cases already exist, and no observations are made on accommodation for the tuberculous because a joint committee of the local authorities concerned is dealing with the problem.

The Hospital Survey, published last year, called for the reconstruction of most of the Radcliffe Infirmary, and stated that the total number of beds needed for the Oxford hospital could not be provided on the Radcliffe site (*British Medical Journal*, 1946, 1, 770). Since the *Survey* was published the city council has added to the hospital services of Oxford by acquiring from the Ministry of Health the Churchill Hospital, with accommodation for 312 patients; but it consists of temporary buildings with only a limited life.

The Future of the Radcliffe

The short-term policy recommended in this programme is to continue the alterations at the Churchill Hospital to enable it and the Radcliffe Infirmary to work at full capacity until the new hospital or hospitals can be built. The long-term policy is to build a new hospital at Headington, which would belong to the Radcliffe Infirmary. The future use of the Radcliffe site cannot be determined until the hospital policy of the Ministry of Health and the requirements of the medical school at Oxford are known. It is considered that a maternity unit of 50 to 100 beds should be built on the Manor House site, Headington, where also should be provided a block of about 100 beds for the chronic sick who require further investigation and treatment. There should be on the same site or on the Wingfield-Morris Orthopaedic Hospital site an additional 100 beds for orthopaedic cases. Another requirement is the building of a new eye hospital, the existing one being inadequate and unsuitable. The Churchill Hospital should be retained as an integral part of the medical services of the area, perhaps for the chronic sick. The Horton general hospital at Banbury should be developed, and a maternity unit and, eventually, a block for the chronic sick should be built there.

It is recommended that the cottage hospitals in the area be used for the observation of difficult cases, the nursing of patients under the care of their own general practitioners, and the treatment of minor casualties; and they might be developed as centres of all the medical activities in their districts, including maternity and child welfare and school clinics. Each of them should have a large room for clinical conferences at which senior members of the parent hospital staff would attend at stated intervals and so relieve general practitioners from professional isolation.

On the general question of staffing, one whole-time medical officer (or his equivalent in part-time officers) is recommended for every 20 beds, or 50 for a 1,000-bed hospital.

H.M. PRISONS IN THE WAR YEARS

REPORT FOR 1942–4

One of the most encouraging features of the latest report of the Prison Commissioners[1] is the account it gives of the revival and growth during the war of the psychiatric activities of the prison medical service. The Medical Commissioner, Dr. J. C. W. Methven, reports a further considerable increase in the number of accused persons remanded to prison for mental observation. He again appeals to magistrates and their clerks to send the fullest particulars of prisoners, for the better the background knowledge of the case the lighter the work of the prison medical officer. From a medical point of view the most important event recorded in this report was the reopening of Wormwood Scrubs in 1942 and the resumption early in 1943 of its psychological and surgical work. Dr. J. C. Mackwood was appointed part-time psychotherapist and Dr. H. K. Snell was transferred from Liverpool to assist Dr. H. T. P. Young, the senior medical officer, in selecting cases for treatment. Suitable cases have been freely transferred from other establishments.

Investigation and Treatment

Before the war emphasis was laid on the investigation of suitable cases: since the reopening it has been laid on treatment. Dr. Young states that since 1934 much information has been collected on the type of case likely to be cured by psychotherapy in prison, and on the alternative possibility of bringing about a practical modification of the abnormal psychological processes. Prisoners deemed suitable and complying with the necessary conditions are referred to a psychotherapist for investigation if they have a general desire to undergo it. The numbers are still very small. In 1943, out of 70 male prisoners referred for investigation, only 18 were given full courses of treatment, the others being considered unsuitable either before or after investigation. The results varied from partial to complete relief. This number clearly does not represent the true proportion of prisoners who should be treated individually, and, where possible, arrangements are made for some short-sentence offenders to attend at a clinic after release. Here again the numbers are not large. Many prisoners prefer to forget their criminal history or will not give up the necessary time; also in certain areas facilities for treatment are limited. Nevertheless, with the expected development of the mental health services the number of ex-prisoners receiving treatment should be much increased. Sending prisoners from the prison to public clinics during sentence has not been found satisfactory, and is impracticable in cases requiring deep analysis, which may involve attendance every day for about two years.

In some cases anxiety is caused by the fact that the treatment specifically ordered by the court is not pursued because the prisoner is unsuitable. Other prisoners are apt to seize on the court's authoritative direction that they should have treatment as an intimation that they are regarded as not fully responsible for their crimes. For successful psychotherapy in prison one of the essentials is a desire for relief expressed before the crime was

[1] *Report of the Commissioners of Prisons and Directors of Convict Prisons for the years 1942–4.* H.M. Stationery Office. Cmd. 7010. 1946. Pp. 154. 2s. 6d.

detected. In its absence the prisoner may be merely passively seeking the support of treatment and gratifying his anxiety for self-justification. The psychotherapist is then in the dilemma that if he gives treatment the prisoner will probably use the fact in a similar difficulty later to explain his criminal conduct; if on the other hand it is withheld, the prisoner's resentment may cancel any reformative or stabilizing influence which the sentence might have had. The selection of cases therefore calls for great care. Moreover, the attempted treatment of unsuitable cases is bound to discredit psychotherapy as a preventive of crime. Again, if the prisoner discovers that the length of the sentence has been adjusted to the time estimated to carry out the treatment he will cease to co-operate. The speed of recovery of a case cannot be gauged before treatment has been started. Dr. Young considers that as the scope and limitations of psychotherapy become more generally appreciated, the number of persons suitable for treatment during sentence will substantially increase.

Physical Methods in Psychiatric Treatment

Arrangements were made to transfer to hospital patients suitable for various forms of physical treatment. Two prisoners received insulin shock therapy and one malarial treatment. Through contact with outside authorities, cases of psychosis are thoroughly investigated with a view to physical treatment. Considerable use has been made of electro-encephalography, with the help of the Sutton E.M.S. hospital. The tracings are useful in the diagnosis of obscure cases of epilepsy, and may prove valuable in ascertaining psychopathic personality, particularly of the aggressive type.

Dr. G. Durrant has been appointed to Holloway as psychiatrist for women. She has examined and reported on many cases and treated suitable patients. A report on her work is promised. Arrangements have been made in prisons for both sexes to extend psychological treatment, and authority has been granted for the appointment of a psychiatric social worker at Holloway and a non-medical psychologist at Wormwood Scrubs. It is hoped that these officers will assist in the psychiatric assessment of prisoners committed to Borstal or to prison, and so enable the Commissioners to provide training according to their needs at Borstal institutions and at special centres, both existing and projected. All prisoners who appear to present some mental abnormality are examined and assessed, and favourable cases with sufficiently long sentences are treated. The psychological treatment of prisoners in prison has disadvantages, and Dr. Methven looks forward to the great help which will be given by the special institution recommended by Dr. Norwood East and Dr. de B. Hubert in their report of 1939, when it is provided.

Among recidivist prisoners transferred from Parkhurst to Dartmoor in 1932 were a number of psychopaths. It was decided to see if these men could be made to "float" instead of being nursed along in and out of the hospital. The medical officer explained to them that if they did not behave they would not be immune from disciplinary procedure: his warning worked quite well and the prisoners seemed much happier. Psychopathic behaviour disappeared, and the hospital population was lower than ever before. Firmness and understanding of the difficulties of these men helped them to carry on normally.

Prison Diet

The Ministry of Food helped the Commissioners in the autumn of 1944 to study prison diets. Dr. Magnus Pyke studied the diet provided at several representative prisons and Borstals. He reported that, broadly speaking, the diet was not unsatisfactory, the only consistent weakness being some lack of vitamin C. Vitamin A was occasionally deficient and a shortage of fat rendered all the diets bulky. Borstal boys had less vitamin A in proportion to their requirements than the adult prisoners. He suggested that the right to unlimited bread should be restored (this was before bread rationing), and that at least 10 oz. (283 g.) of carrots be issued to prisoners and 14 oz. (395 g.) to Borstal inmates every week. He also advised that Borstal inmates should have eggs and more milk. The committee of medical officers which considered his report recommended a substantial increase in the bread issue and the provision of 10 oz. (283 g.) of carrots a week, also the increase of the milk ration in local prisons and Borstal institutions to the maximum available in wartime. Dried eggs would, they said, be issued to hospital patients. To deal with the fat deficiency, the committee recommended the issue of 4 oz. (112 g.) of sausage-meat weekly. Dr. Pyke's method of cooking green vegetables to save vitamin C was circulated to all establishments. After seeing the recommendations of the committee, Dr. Pyke said they satisfied his criticisms.

Reports of Societies

PRINCIPLES GOVERNING NERVOUS ACTIVITY

HUGHLINGS JACKSON LECTURE BY PROF. ADRIAN

In the Section of Neurology of the Royal Society of Medicine on Jan. 2 Prof. E. D. ADRIAN, O.M., F.R.S., delivered the tenth Hughlings Jackson Lecture. The first lecture was delivered by Hughlings Jackson himself exactly fifty years ago.

Prof. Adrian began with a reference to Herbert Spencer, a philosopher who was to-day forgotten, but who had moulded the thought of his mid-Victorian generation, and whose influence was shown in the development of neurology through his great admirer Hughlings Jackson. The theories and predictions of Hughlings Jackson were based on Spencer, and the illumination which these gave to neurology was as brilliant to-day as ever. Hughlings Jackson was one of the great clinicians of all time, a scientific observer of the first rank, and his theses were still fresh and individual and none the worse for our advancing knowledge. His ideas were cast in terms so general that they applied whatever the detailed structure of the nervous system might prove to be. Many of his writings were published before the neurone theory had been properly formulated. Most of the data of clinical neurology were available then as now, but he had not got our great mass of detailed information about cell structure and cell physiology. We had no Spencer now to give us an accommodating framework, and no Hughlings Jackson to fill in the picture, but we ought to survey our own knowledge from time to time in the light of Hughlings Jackson's theories.

Evolution of the Nervous System

Hughlings Jackson described the evolution of the nervous system as proceeding from the lowest well-organized centres to the highest least-organized; from the most simple to the most complex; from the most automatic to the most voluntary. The stretch reflex could be instanced as an example of a low level of nervous complexity and the highest degree of organization. A higher level of complexity was shown in the flexion reflex in response to pain in which the synaptic delay was twice as long as that in the stretch reflex. The motor discharge was no longer rigidly confined to one pathway. The painful stimulus had to be avoided if the body was to escape damage, and, if the danger signals persisted and increased, the avoiding movements had to be more powerful, involving more and more muscles. In the flexion reflex the power of evoking intense and widespread activity was much more important than the precise localization, and this seemed to arise from the less definitely organized arrangement by which the afferent discharge had access to a whole network of internuncial neurones. The multi-neurone arrangement gave the flexion reflex its characteristic inertia and momentum, so that the motor activity increased progressively and continued as an after-discharge. In this reflex an afferent stimulus lasting one second might give a discharge ten times as long, and at higher levels the evidence of long-lasting central effects became more and more striking, culminating in the cerebrum, where the results of an afferent message might be stored indefinitely to influence behaviour for many years to come. Thus there were two manifestations of central activity to explain: in the lower levels the momentum, the slow rise, and the long after-discharge; and in the higher levels the tendency to continue oscillations of cell activity, rhythmic pulsations modified by but not obviously dependent on the afferent signals. The evidence for the pulsations depended on electrical changes rather than on motor effects, but it was clearly a constant feature in cerebral organization.

One hypothesis put forward recently in neuro-physiology related both the momentum and the rhythm to a single cause, namely, the widespread connexions formed by the dendrites with internuncial neurones. In this view protracted discharges from the spinal cord were supposed to be due to a continued bombardment of the motor neurones by impulses reaching them by multiple pathways. The idea was attractive at first sight because it could be made to explain so many features of neurological activity; but there was no convincing proof of the reverberating circles in the higher nervous levels, and there was convincing evidence of quite another kind of activity, namely, electrical effects which occurred with an afferent "volley."

The Electrical Hypothesis

The spread of excitation through a mass of nerve cells was guided to some extent by the pathways formed by the dendrites, but it was possible that outside the well-organized pathways more diffuse connexions at high levels might depend to some extent on the electrical fields generated by the active areas. This was a different conception from that of the school which thought chiefly in terms of dendrite connexion and reverberating pathways. The idea of the association of neurones by electrical rather than by direct neural influence was not new, but some fresh evidence for it had recently appeared. It had been shown that the two halves of a frog's heart, completely separated by a cut and then brought into contact, might influence one another enough to make them beat synchronously. There were many points to be learned about this mode of interaction, which was diffuse, covering wide fields and varying with intensity and distance. Continued rhythmic activity was characteristic of the higher centres. In the cerebral cortex a continued oscillation of electrical potential was found; it was uniform over considerable areas, and whatever its cause it meant that neurones could not be thought of as being in the same state from one moment to another. If they were not all synchronous an afferent signal would find some neurones refractory and some excitable. The tendency to rhythmical activity in the neurones of the higher centres and the possibility of influence by electrical rather than by dendritic connexions were two factors which had to be considered in forming an idea of the organization of the cereoral cortex.

Uniform low-frequency levels seemed to be established in the cortex when the disturbing influence of afferent signals was excluded. When afferent signals arrived their rhythm was taken up and the cortex entered on the irregular heterogeneous activity which was presumably necessary for ordinary discriminating behaviour; but if the excitation was intense or the cells were highly active a rapid uniform rhythm might spread. In the cerebrum an exciting agent (or an injury) might set up a uniform rhythmic activity with a period of about 60 a second; in the cerebellum a rather different plan seemed to be followed, with a rhythm of higher frequency (150 to 250 a second). This was maintained by the constant inflow of afferent signals; if an additional message was sent in the waves increased in size and regularity, most of all at the point of arrival of the message, though to some extent in all limb areas on that side.

High-frequency synchronization could be achieved by electrical spread from one neurone to another. It could occur at the cut end of a nerve trunk and it was favoured by abnormal conditions likely to modify the membrane of the cell. It occurred only over the higher frequency ranges; with minor degrees of excitation the neurones responded at widely different frequencies. As they approached their maximum rate of discharge one group of neurones would act as pacemaker, and then a large number of elements beating in unison would produce an alternating field great enough to cause units not so strongly organized to resonate. This effect could certainly obtain in the normal behaviour of large cell masses and might dominate their behaviour in abnormal states.

Cell Activity at the Higher Levels

In speculating on activity in diffuse electrical fields there was some danger of forgetting to think in terms of fixed anatomical connexions. In the cerebrum heterogeneous localized discriminatory activity was essential and depended to a great extent on structural differences, but it seemed to depend also on factors unrelated to structure, particularly on the great instability of the cells at the higher levels. Little idea could be formed of the patterns in the higher centres, in which the neural equivalent of what went on in the mind, its powers of memory and problem-solving, must be sought. What kind of patterns of cell activity might be expected at the higher levels? The activity seemed to depend less on neural connexions than on the general balance of excitation. On both the sensory and the motor side the central patterns seemed to have no precise localization; no necessary connexion with particular neurones. There were such facilities as the recognition of the face of a known person in a photograph notwithstanding the complete change of scale, or the way in which a skilled act could be done by the left hand when the trained right hand was injured. The spreading electrical fields producing synchronous activity might account for some of these things, though there remained a great deal still to be explained.

Some clue to the nature of the pattern might be obtained by bearing in mind that purposive acts must be moulded by the afferent nervous patterns. These continued as a spur to action until the aim, whatever it might be (turning the gaze or closing the hand), was achieved. When that achievement was signalled along the afferent pathways the disturbance subsided. The broad afferent pattern—the temporary and spatial distribution of sensory activity which signalized the accomplishment of the aim—seemed to be uniquely related to the disturbance. This was, in a way, the inverse of the existing pattern—the key which fitted the particular lock. That seemed to be a hypothesis on which it was worth while to work in endeavouring to elicit the exact neural mechanism in the higher centres. Such a scheme must obviously account for the most complex as well as the most simple activities—the planning of one's career as well as the putting of one foot before the other. The drawback in all such speculation was that if one thought too far along one line one was likely to become so enamoured of the prospect as to be unwilling to risk experiments which might show it to be an illusion; nevertheless it was a possible line of investigation, and that was its justification.

MEDICAL SOCIETY OF THE L.C.C. SERVICE

The annual general meeting was held at County Hall on Jan. 8, 1947. Sir Allen Daley, the retiring president, was made honorary president, and Dr. R. C. Harkness was elected president. Mr. J. R. M. Whigham, of St. Andrew's Hospital, was appointed chairman for the ensuing year.

Mr. G. F. STEBBING, the retiring chairman, gave an address on the "Organization of Cancer Treatment." The broad principles which must be common to all organizations for the treatment of cancer were outlined. The general practitioner must be persuaded to keep cancer constantly in front of his mind; and he must be encouraged to send even slight ailments for investigation by specialist teams. These teams must work under the best conditions, and there must not be too many of them. Some surgeons would have to give up the idea of treating cancer of any kind, and all surgeons would have to agree to concentrate their attention so far as cancer was concerned on certain sites allotted to them by the cancer organization. The follow-up of cancer patients must be jointly arranged by all the specialists concerned and by the general practitioner, who should be kept fully informed at every stage of the treatment. All cases should be followed up to their conclusion, especially those in which treatment failed or had not been attempted. The knowledge obtained from necropsies should always be fully correlated with any treatment that had been given.

"How long do you sleep?" Questions relating to this problem were recently put by the Gallup Poll to a sample section of the population and the results reported in the *News Chronicle* on Jan. 30. It was found that 50–60% of men and women went to bed between 10 p.m. and midnight and rose between 6 and 7.30 a.m. About 20–25% went to bed before that time and between 20 and 30% rose after 7.45 a.m. Most men and women sleep 7 to 8 hours a night. It was found that unoccupied, unemployed, and retired people had the highest average length of sleep—about 9 hours—with as many as 31% sleeping 10 hours.

Correspondence

The Pemmican B.M.J.

SIR,—Notwithstanding that I have no mandate from my 50,000-odd fellow members I feel sure that I express their feelings, as I certainly do my own, when I write to congratulate you and your surprising new printer on the production of No. 4494 of the *British Medical Journal*.

Just as in the disastrous days of war so now in the even more drastic ones of the peace that passeth understanding a "motiveless malignity" endeavours to make you cease from uttering your weekly words of wisdom.

Doubtless Galileo had the *B.M.J.* in mind when he murmured, "Eppur si muove." In other words, "Publish yourselves to the sky."

To you, Sir, and all concerned, our congratulations and thanks.—I am, etc.,

Bristol. RICHARD J. A. BERRY.

SIR,—Very warm congratulations on the production of the current issue of the *B.M.J.* I hope that our great Association will defy all Ministers and their regulations and continue to publish these attenuated editions until the ordinary issues can be resumed.

It reminds me of the things published in the General Strike (1926) of which I have a collection.

Good luck.—I am, etc.,

Taplow, Bucks. G. GREY TURNER.

SIR,—I wish to take this opportunity to congratulate you on producing the *Journal* in its present spectral form, which is so vastly better than no *Journal* at all. Few if any periodicals would have the novel conception or the drive to release an issue in similar tabloid edition, and one could wish that the authorities in power at the moment had as much conation. It savours of British tradition more than anything Parliamentary to date. One is reminded of the exhortation to Naval personnel during the war: "The difficult we can do at once, the impossible takes a little longer."—I am, etc.,

Warrington. P. A. M. ROBERTSON.

SIR,—Congratulations on the candle-light edition of the *B.M.J.* and thanks to the Secretary "printer." Excellent tabloid, and sustains the unbroken record of the *Journal*. Am sure the whole profession is grateful and appreciative. Thanks.—I am, etc.,

London, W.1. A. BROMAN.

SIR,—My congratulations on your enterprise. As a symbol quite apart from its contents I think this week's edition of the *B.M.J.* has tremendous significance. Would that the Government would show evidence of similar enterprise.—I am, etc.,

Oxford. JOHN STALLWORTHY.

SIR,—One million congratulations on this week's potted *B.M.J.*, and especially on its touches of dry humour.—I am, etc.,

Taplow, Bucks. E. GREY TURNER.

SIR,—Please allow me to congratulate you on *B.M.J.* of Feb. 22; it is a magnificent effort and seems to have more in it than some of the earlier journals.—I am, etc.,

Dumfries. A. P. BERTWISTLE.

SIR,—It was with great satisfaction and real pleasure that I received the *British Medical Journal* of Feb. 22. The way in which the salient features were condensed without losing the characteristic form of the *Journal* betokens positive inspiration on the part of the creator. I feel that in all the circumstances the issue was a triumph.—I am, etc.,

Sennybridge, Brecon, S. Wales. N. E. MELLING.

*** We have received many other letters and messages of appreciation of our two Pemmican issues.—ED., *B.M.J.*

Dietetic Factors in Liver Disease

SIR,—Every medical student knows, or ought to know, that patients with acute necrosis of the liver may succumb before the development of jaundice, and Dr. P. H. Willcox (Feb. 15, p. 266) should have realized that what I was describing (Jan. 11, p. 45) was not the unusual case of acute necrosis but the type of case which would carry conviction in therapeutic trials. I should, therefore, have ignored his letter if it had not been for his aggressive defence of the use of the term "toxic jaundice" in a sense which has confused a generation of medical students. "Toxic" means produced by a poison or chemical, as in toxic encephalitis, toxic myocarditis, and toxic nephritis. To call a lesion produced by a virus or micro-organism "toxic" is an inaccurate use of the English language and of medical terminology. If jaundice is to be classified on the lines which Dr. Willcox suggests, then the correct terms are haemolytic, hepato-cellular, and obstructive. This familiar classification is of limited value and is liable to degenerate into a pseudo-scientific application of the van den Bergh reaction. Analysis reveals that it is essentially topographic in significance and refers to the place where the jaundice originates rather than the aetiological factor which produces it. The difficulty in using such a classification is illustrated by the fact that haemolytic jaundice is often toxic in origin—i.e., produced by a biological toxin or a chemical poison—and it always has a hepato-cellular component, which may be in part obstruction. For this reason it would be better to use the terms pre-hepatic, hepatic, and post-hepatic jaundice on analogy with uraemia.—I am, etc.,

Oxford. L. J. WITTS.

Treatment of Pernicious Anaemia

SIR,—Through the courtesy of Messrs. Lederle Laboratories Inc. we have been supplied with sufficient folic acid to treat some 40 patients during the past eighteen months. These patients were suffering from a variety of diseases, and eleven cases of pernicious anaemia were included. Three of these patients suffered from subacute combined degeneration of the cord. In two of the cases no objective or subjective improvement resulted from therapy with synthetic *L. casei* factor while in the third case the neurological changes progressed rapidly during treatment even when the dose of folic acid was raised to 20 mg. daily by mouth. Marked improvement resulted from intensive parenteral treatment with anahaemin. We reported these observations to Messrs. Lederle because of the serious implications which obviously accrued therefrom. Accordingly we were not (*Lancet*, 1947, 1, 174) surprised to read the clear evidence presented by Spies and Stone that synthetic folic acid and synthetic thymine will neither prevent the development of subacute combined degeneration of the cord in Addisonian pernicious anaemia nor relieve it once it has developed.

These findings indicate that folic acid should not be used as the sole therapeutic agent in pernicious anaemia except possibly as a temporary measure. Until the specific factor for the maintenance of the integrity of the central nervous system has been discovered parenteral liver therapy must continue to be the accepted method of treatment both for pernicious anaemia and its neurological complications. It may be shown in the future, however, that a combination of folic acid and liver therapy is more satisfactory than either method individually.

In parenthesis we would mention that we have confirmed Spies' claim with regard to the haemopoietic effects of synthetic thymine in Addisonian pernicious anaemia. The material was supplied by courtesy of Messrs. Genatosan Ltd.—We are, etc.,

STANLEY DAVIDSON.
Edinburgh. R. H. GIRDWOOD.

National Health Service

SIR,—The beginnings of the National Health Service are being forgotten by the lay public and the medical profession alike. Let me recapitulate. A Beveridge plan was produced by a Liberal, taken up by the Conservatives, and actuated by the Socialists. Social security was the advance, and no party could allow this luscious plum to fall outside its vote-catching ambit. Here was something that far transcended "ninepence for fourpence." The employee must now pay 4s. 7d. per

week, and the employer pays a contribution as well, and the end result must be about ten times as good—or is it? But to make social insurance work it had to be implemented by a National Health Service. It was not that the present health service of this country was so bad that it needed reformation, but that a social insurance scheme could not work financially without control of certification. It was Mr. Ernest Brown, when Minister of Health, who let the cat out of the bag when he stated that social insurance required control of the doctors in order to control certification. Having made that statement he was shortly out of office. Facts like that must not be put so bluntly.

If the country—not the politicians—had said the medical service of this country was bad and reformation necessary, I would be the first to help plan something better; but it is a fact that medical practice in this country (and I speak particularly of the general practitioner service) is much better and fairer than in any other country. Speaking of the countries before the last war, compare it with general practice in the provinces of France, Germany, U.S.A., Austria, Denmark, to name only a few of the more advanced countries in a medical sense. Paris, Berlin, Vienna, etc., were first class, but outside these capitals and outside the specialist classes the general practitioner was in no way comparable to our own. I think this is universally admitted.

Do not for a moment think that I am suggesting a smug complacency in this respect; there is never a good but it could be better. Medical practice here could be vastly improved, not by turning it upside down and nationalizing it, but by a system of grants and without the expenditure of £66,000,000. How we have always longed for a pathological service easily available and *at our doorstep*, a consultant *at the bedside*, to name but two advances; and all this could be done with a few strokes of the Minister's pen and a relatively small grant. But no, the Government's argument is this, though not stated: We never said your present service is bad. We are not concerned with the welfare of the patient. But within a social security scheme patients, doctors, and their certifications must be controlled to enable the organization to work in a Civil-Service-like manner. At the same time we as a Government must make it look as if it was a forward step in medicine, so we advertise it as free medical treatment for all—all hospitals and consultants available to the richest and the poorest. That is the Government's propaganda.

The best hospitals and best consultants were always available to the poor and sick. Change is not always for the better. The general practitioners and the specialists cannot be changed overnight by a degrading change to Civil Service. If I thought that the Government had at heart a real desire to help medicine I would be the first to join a new service, but I am afraid their intentions are purely political and merely to implement social security. Let us keep the origins and intentions of this scheme ever before us, and we shall see its falsity. By not negotiating we can never be accused of being part and parcel of it. Let us keep our hands clean and reserve our decision to the final plebiscite.

—I am, etc.,

High Wycombe, Bucks. W. J. O'CONNOR.

SIR,—Among the interesting correspondence in your columns on the subject of the National Health Act I am surprised to find that among the many objections raised there has not been more opposition on the grounds of the inexpediency of attempting to work such an Act at a time when the public is suffering from poor and monotonous diet, housing shortages, and the very serious shortage of nurses and beds in hospitals. It would seem to be a matter of simple common sense for the Government to deal first with these shortages. Action on these lines would do more to improve general health than the creation of an expensive service involving still more official forms and countless office boys.

Apart from the unwise timing of this new Act, which, from questioning many patients, I am convinced is by no means popular, and the fact that the financial state of the country hardly permits one to believe that it can be implemented in 1948, there is a very serious drawback from the general practitioner's point of view, and this drawback is seldom mentioned. This is that the surgery hours will be swamped by elderly chronic cases, leaving too little time for attendance on workers and young people. This is already apt to happen when the doctor is a district M.O. Much illness and distress among the elderly is due, not to lack of medical care, but to lack of suitable accommodation and simple domestic help. But it is obviously easier for Mr. Bevan to create more forms than more houses for the people. Doctors' surgeries are already overcrowded with chronic cases for whom little can be done medically, to the detriment of workers who do not want to spend weary hours in waiting-rooms.

I would like to add one more point. Some doctors, by no means all of one political persuasion, find the prospect of the new Act attractive because they envisage working for limited hours, perhaps in a kind of rota, and in well-equipped clinics. There would be much to be said for this; but there is no guarantee whatsoever that the doctor will have even a twelve-hour day. The quasi-humanitarian attitude of "You couldn't do that" towards doctors may be very meanly used to press them to accept all the drawbacks of Civil Service without its concomitant advantages in the form of set hours. As for the building of new clinics, it is possible that they may appear in time—probably a long time—but meanwhile most general practitioners will still have to use their own homes for professional purposes and their wives will still be slaves to the telephone—a situation unknown in other branches of the Civil Service; and if the present Government has its way the bulk of the profession will be members of a kind—a very over-driven, onerous kind—of Civil Service. The trap is widely open for all who have eyes to see.—I am, etc.,

London, W.4. JOHN C. C. LANGFORD.

SIR,—I am disturbed to find considerable evidence of differences of opinion within the profession as to what constitutes the principal objection to the National Health Service Act and Mr. Bevan's relevant proposals. An attempt to sum up the position may not be amiss. The possible bones of contention would seem to be principally: (1) The tribunal; (2) abolition of purchase and sale; (3) so-called "direction"; (4) payment by salary. In my submission the essential objection on which a stand must be made is the salary. I believe that all the other objectionable features are offshoots of that idea.

All attempts from within the profession to obtain a Government-organized comprehensive health service for the nation failed. It has only been when the necessity for controlled certification has arisen (*vide* Lord Beveridge, the present Lord Chancellor, *et al.*) that governments have sponsored plans for a service. That is to say, historically the origin of the proposed Service is based on the Treasury's urgent desire to control the doctors. The obvious way to control them is to employ them, and the way to employ them is to pay them a salary—whole or so-called basic. If we fail to keep this fact before us and to recognize the salary as not only the main theme but as the very *raison d'être* of the whole scheme, we are in grave danger of losing all.

The tribunal is a red herring brought into the limelight in the dubious presidential-ministerial correspondence. It is possible that the Ministry intends "concessions" here as bait, knowing full well that such concessions would be of little or even no value. It will be the most natural thing for a contract between an employer and an employee to carry a clause making it terminable by so many months' notice on either side (the alternative is a contract to be binding for ever, and this seems fantastic). If such a clause is ever invoked no reasons would have to be given, and no tribunal or law court could be interested. The only true safeguard is to refuse to have a single overriding employer—i.e., to refuse any form of salary. Then the right of appeal to a court will have real value.

Abolition of purchase and sale is not, in my view, political or associated with any policy of nationalization. Some see it as a pistol held at our heads, but though it has this effect I do not think that it is based on such an intention. An offer of compensation must have a time limit set to it—the Government cannot offer to buy medical practices *ad lib.* for ever. Whether the time limit is the "appointed day" or *x* months after that day is of small moment, while the former is the obvious logical choice. The Minister pretends that the abolition of purchase and sale has some high moral virtue. The simple fact is that purchase and sale *cannot* persist in a salaried service. Accept a salary and we have no possibility of retaining the right to buy and sell, but reject a salary and the Minister is left with no valid reason for depriving us of the right.

Dr. K. M. M. Sheldon (Feb. 1, p. 195) attributes to "capitation fee" the faults which result from "inadequate capitation fee." Let us make sure in all our discussions on the new service that "capitation fee" is synonymous with "adequate capitation fee"—adequate to prevent the wrongs which Dr. Sheldon so rightly condemns.

So called "direction" is similarly an outgrowth of the salary idea. The Minister pretends that the aim is a better distribution of doctors, but this is obvious eyewash. The simple fact again is that it is an essential part of a salaried service. A salaried school teacher, salaried dustman, or salaried M.O.H. cannot earn his living as such except where a vacancy in a service occurs. The same would be true of salaried general practitioners. The Minister's real reasons for this objectionable feature, too, therefore evaporate when the salary idea is removed.

Let us then keep the salary idea in the forefront of the picture. Let us, if he is persistent, fight the Minister on this issue, which if won can win all, but which if lost *must* lose all.—I am, etc.,

West Bromwich, Staffs. D. SAKLATVALA.

SIR,—Among many possible disadvantages to general practitioners working under the new Health Service scheme there is one attraction which will surely count for much. It is likely that simple pathological investigations and routine radiographs with expert interpretations will be available to patients without the necessity of first consulting a specialist.

In many places in this country the fantastic situation exists whereby a general practitioner who wishes to have his patient's blood count estimated or his chest *x*-rayed must first obtain the approval of a consultant. Under such a system the patient is often unnecessarily inconvenienced by having to wait in an already overcrowded out-patient department, the specialist is given unnecessary work, and the general practitioner is denied the right of direct control of his patient's case, as in the event of his suspicions being justified, and an abnormality being found in the blood or the chest film, he is often not considered capable of dealing with it. In such circumstances is it surprising that a diminishing number of newly qualified men are looking to general practice to give them satisfaction for their abilities?—I am, etc.,

Southampton. J. L. LEWIS.

The So-called Health Service

SIR,—Surely we can agree that private practice must be defended from wilful destruction. There will be a great many patients and doctors who prefer it to State medicine. The two forms of service could run side by side; but Mr. Bevan intends that there shall be no alternative to his plan. It obscures the facts to say that under his Act doctors need not join the Service and are free to practise outside it if they so choose. All hospitals are to be seized, and no doctor outside the Service is to have access to them for treating his or her patients; and the Act empowers the Minister to deal likewise with nursing homes if he deems it desirable—which means of course that they *will* be seized if it is found that they enable private practice to be carried on. In short it is to be made impossible for a doctor to earn a living except as a Government employee. He is not forbidden to, oh no, he will just be prevented.

Certain writers in this *Journal* and elsewhere seem to think that it is our moral duty to became salaried State officials because that represents the will of the people. To me that appears wide of the mark. The masses have no more idea of the consequences than a child who wants to bathe in a whirlpool. The medical profession holds a key position as one of the guardians of personal freedom—our own included, though some have foolishly suggested that we ought not to pay any consideration to this latter—and I submit that even those who wish to work in a State medical service should decline to join until the provisions for State monopoly and dictatorship embodied in the present Act are abolished.—I am, etc.,

Birmingham. D. PRIESTLEY SMITH.

Penicillin Lozenges

SIR,—Some investigations are being made at the Dental Department of this hospital concerning the effects of penicillin lozenges and other preparations used locally in the mouth. Correspondence in the *B.M.J.* in recent months indicates interest in the subject, and it would be much appreciated if those who have had cases of discoloured and sore tongue following the use of penicillin orally would kindly communicate with the writer of this letter, giving details.—I am, etc.,

Dental Department,
Guy's Hospital, London Bridge, S.E.1. W. G. CROSS.

Penicillin Treatment of Carbuncles

SIR,—The dosage of penicillin in the treatment of carbuncles described in "Any Questions?" (Feb. 1, p. 207) is cumbersome and administered only with considerable inconvenience to the patient. In a busy casualty department I have found that even very serious carbuncles are cured by twice-daily injections of 200,000 units given intramuscularly for five days.

A typical case is that of a man aged 33 with a large carbuncle of the upper lip with early sinuses inside the nose and at the muco-odontal junction. He had had the condition for five days before coming to hospital. Insistent requests to incise the carbuncle were firmly refused, and the patient was assured of considerable relief in one or two days and virtual cure within five days. He was then started on a course of 200,000 units twice daily for five days. After 24 hours the patient felt much better, and sloughs were removed on the third and fourth days. In view of the dangerous site of the carbuncle infra-red was given as an additional precaution, and continued for three days after the full course of penicillin. By the eighth day no further treatment was necessary. All the while the patient was ambulant, and he attended Casualty for his injections.

For surface carbuncles local hot applications are used, and only dry dressings are necessary at the end of five days. Infra-red is not used as a routine. There have been no metastatic complications whatever with this treatment. I have found that penicillin in oil does not give the same dramatic results even when high dosage—250,000 b.d. for four days—has been used. The advantages of the high-dosage penicillin therapy described lie in its dramatic success without surgical interference and in its simplicity; the patient is ambulant throughout treatment, which can therefore be carried out in the consulting-room or in a casualty department. There is the minimum of dislocation of the patient's life, and more hospital beds are freed for other purposes—a not inconsiderable factor at the present time.—I am, etc.,

Mitcham, Surrey. S. GOLDWATER.

Reiter's Disease

SIR,—The triad of symptoms grouped together as "Reiter's syndrome"—viz., purulent conjunctivitis, polyarthritis, and urethral discharge—as described in the *B.M.J.*, Aug. 10, 1946 (p. 197), is sufficiently unusual to make diagnosis of the condition easy. Such a case treated in this hospital recently illustrates the condition, and in view of its apparent rarity seems worth recording.

CASE REPORT

A battery sergeant-major aged 25 developed a scanty mucoid urethral discharge on a troopship returning to India from U.K. on Aug. 22, 1946. There was a history of exposure on the 9th; he was assumed on dubious grounds to be suffering from gonorrhoea and given a course of penicillin (total 150,000 units) without benefit. The discharge continuing, he was admitted to C.M.H., Secunderabad, on Sept. 3. Repeated smears failed to show any gonococci, though there were extracellular Gram-positive organisms. On Sept. 8 he developed a subacute arthritis of the mid-tarsal joints of the right foot with reddening of overlying skin, and the right eye showed intense conjunctivitis with chemosis and mucopurulent discharge. The urethral discharge at this time was so severe that there were numerous meatal erosions. The eye was treated locally with mercurochrome and saline irrigations, and he was given a sulphathiazole course for 5 days (30 g.). This improved the urethral discharge but not the other symptoms, and on Sept. 10 he was complaining of stiffness of the left temporomandibular joint and pain in the left tarsal joints as well.

By Sept. 17 the conjunctivitis had settled and the urethral discharge was much less, but he was running a remittent pyrexia of 99–100° F. (37.2–37.8° C.) and sedimentation rate was 100 mm. first hour. Both the mid-tarsal joints now showed signs of inflammation and the left knee was somewhat swollen. A second course of penicillin (30,000 units 3-hourly for 30 injections, total 0.9 mega-units) had no effect on either the pyrexia or the arthritis, and on Sept. 27 the left mandibular, both mid-tarsal, and left knee-joints were still unchanged. In October he developed a huge effusion in the left knee, and 50 ml. of greenish fluid were withdrawn on the 15th; this was sterile on culture. During late October there was a recurrence of urethral discharge, which was again improved by a short course of sulphathiazole. The pyrexia settled by mid-November. On Oct. 30 B.S.R. was 50 mm./hour, on Nov. 25 22 mm./hour, and by Dec. 7 it had fallen to 7 mm./hour only. The arthritis of knees and tarsal regions slowly subsided, the later stages

being helped by quadriceps exercises and radiant heat. Subsequent convalescence, though slow, was uneventful. Negative investigations included stool examinations, culture of urine and 24-hour specimen for the acid-fast bacillus, *x* rays of the affected joints and also of the chest. Leucocyte counts in the acute stage varied between six and nine thousand cells per c.mm. (P.: 70%; L.: 25%; M.: 3%; E.: 2%). Blood culture was sterile.

The patient illustrates the salient features of the disease, including the liability to sudden serous joint effusions and the subacute but self-limited course. The duration of nearly four months coincides pretty well with the cases written up by Jackson and by Wrigley (ibid., p. 199). He also appears to have been helped by sulphathiazole as were their cases.

It is one of the many annoying features about medicine in India that many special investigations are not available, including the gonococcal complement fixation test, but there was no clinical doubt that this was not a case of gonococcal arthritis but of the rarer Reiter's syndrome.—I am, etc.,

K. W. G. HEATHFIELD,
Capt., R.A.M.C.

Secunderabad, India.

SIR,—The article by Flight-Lieut. W. P. U. Jackson (Aug. 10, 1946, p. 197) and comments on same by Drs. R. N. Herson and Frank Marsh (Aug. 24, p. 275) and by Dr. Joseph Denfield (Oct. 12, p. 555) have moved us to write this letter. In 1943 in our article on virus infection of genitalia (*Rev. chil. Hig.*, **5**, 253) we referred to the existence of a positive Frei test, eye fundus oedema, and of deep iliac lymph node inflammation in typical and *frustes* forms of so-called Reiter's disease and attributed the syndrome complex to the action of lymphogranuloma venereum virus. In some cases the disease was accompanied by an abacterial urethritis, but in most the discharge contained gonococci. L.V.-gonorrhea association is not infrequent, as pointed out by us in 1943 (*Brit. J. vener. Dis.*, **19**, 37).

A similar condition to that observed in males was described by us in women in 1944 (*Obstet. Ginec. Lat.-amer.*, **2**, 9). The existence of a positive Frei test, typical L.V. eye fundus findings, and other evidence of L.V. infection were also found by us in so-called Behcet's syndrome and also published in aforementioned articles. If colleagues have interest in reading articles published in Spanish, reprints will be gladly forwarded on request.—I am, etc.,

W. E. COUTTS.

Santiago, Chile.

Cerebral Malaria in Great Britain

SIR,—Both in Britain and in tropical climates malarial infection is frequently associated with intercurrent infections. Parasites may be found in blood films and the prognosis altered accordingly. Acute bronchitis, pneumonia, and typhus fever (10% of my 493 cases), and cerebrospinal fever were perhaps the most noteworthy associated infections in my experience in the Far East (1942–6). I had three cases of meningococcal meningitis associated with malaria (positive blood films). Treatment was directed to the meningitis first, and the malarial infection was concurrently treated with quinine and mepacrine.

It therefore caused me some surprise to read that Dr. Walter Broadbent (Jan. 4, p. 32) was so ready to diagnose cerebral malaria in the case of a man with fever and meningism who had recently returned from West Africa, even assuming that he found malarial parasites in blood films. In my experience meningism was not always found in cerebral malaria, and in such a case as he describes I could not have rested content without first examining the cerebrospinal fluid to exclude meningitis. Although in this particular case his diagnosis was correct and was to be commended, I submit that the assumption that every case of fever associated with meningism and positive blood film is one of malaria only may lead to disaster, because meningitis, which may sometimes be present in addition, may escape recognition and treatment. Likewise pneumonia may often escape recognition where malaria cases are diagnosed by blood films. Indeed, it was my custom in my division of the military hospital in which I was stationed to be on the look-out for chest signs among the many malarial cases under treatment. It was not an infrequent occurrence to recognize pneumonic signs in cases previously missed by medical officers.

I think these points should be mentioned in view of the fact that malarial relapses may at any time arise among certain persons returned from overseas, and may come under the care of practitioners inexperienced in (and sometimes ignorant of) the disease and its associations. Relapses of malaria are common in the cold weather, but fresh cases are only likely to arise in spells of hot weather. While the disease should be suspected in any person with fever recently returned from an endemic area, and cases in doubt should be treated, it is of equal importance to see that superadded infections such as pneumonia and meningitis should not remain untreated in the early stage, even in those cases in which parasites are found on examination of the blood films.—I am, etc.,

PHILIP H. WILLCOX.

Windsor, Berks.

Early Diagnosis of Tuberculosis in Adolescents

SIR,—In view of the great increase of tuberculosis among the 15–25-years group of the population and the impracticability of mass radiography as a general routine, would it not be a good thing if all "school leavers" were tested by the tuberculin patch or inunction method? "Negative reactors" could then be followed up by repeat tests at frequent intervals of, say, about three months.

This type of test would be simple to apply and would be less terrifying to the child (or parent) than "the needle." It would also save the time of parents and children who might have to attend some clinic—perhaps at a distance from both home and school—for mass radiography. It would be a simple test, quickly applied and easily checked, and should help to keep under supervision all "negative reactors" when they enter industry or other spheres.

If the result of the test were entered on the school medical record card it would (or should) reach the doctor on whose panel list the young person is entered. If there is a medical officer—as there is in Aberdeen—to supervise the health of the students, it could be forwarded to the university medical officer or the training centre medical officer and so complete the follow-up during those years of great susceptibility.—I am, etc.,

WINNIEFRED M. GRAY.

Aberdeen.

Chemoprophylaxis of Rheumatic Disease

SIR,—It has been, rightly or wrongly, attributed to the rarity of nasopharyngitis that acute and chronic rheumatic polyarthritis and rheumatic heart disease, common to both tropical and temperate zones,[1,2] are unknown among nomadic Lapps.[3] For fifteen years it has been noted that a nasopharyngitis (phase 1) or indeed a mild gastro-enteritis precedes the efflorescence of rheumatic fever or idiopathic rheumatoid arthritis (phase 3) by a "latent" phase 2 of 5–40 days.[4,5] The *chemoprophylaxis* of phase 1 is based on the assumption that haemolytic streptococci (group A) are the essential organisms in their bacterial flora. In my experience this is not necessarily so.

The action of penicillin or sulphonamides is not antirheumatic.[6] The latter aggravate a smouldering rheumatic infection and must be used cautiously. Even in the latent phase 2 frequent electrocardiograms disclose myocardial mischief. Further Swift,[7] who has emphasized that in children a chronic rheumatic carditis may show persistent activity for months and even years, notes that subclinical rheumatic relapses occur with a frequency hitherto unsuspected, as disclosed by the careful records of body temperature, sleeping pulse (over 80 abnormal for children, adult normal 60–65),[14] and ancillary laboratory tests. Because abnormalities may be transient, electrocardiograms are needed daily or bi-weekly. While other abnormal causes must be excluded with positive tests, both the E.S.R. and leucocyte count (examined prior to noon because of diurnal tides,[8] abnormal—9,000 or over)[15] may be normal in the presence of active infection; in such cases the formol-gel reaction is abnormal.[7] Usually there is a close correspondence between E.S.R., leucocyte count, and body temperature (10 minutes orally).

An invaluable common sign, hitherto undescribed, of rheumatic infection is a sudden onset of mild to moderate tenderness and tenseness of finger pads, the overlying skin being dark red in colour, transient in 48 hours but aggravated by trauma (watch-

winding or writing) and indistinguishable from Osler's digital nodes. A similar complaint is seen in rheumatoid arthritis and in epidemic polyarthritis.[8] Chronic rheumatic carditis may present a transient bacteriaemia, splenomegaly, purpura (petechia, subungual splinter, and subconjunctival)[9] and be confused with septic endocarditis, in 10% of which the blood culture is persistently negative.[15] Both may coexist.[10 13] The absolute diagnostic criteria of the latter are organic heart disease plus a persistently positive blood culture (non-specific) or *infective* emboli. Penicillin therapy would be diagnostic if curative.

Chronic persistent rheumatic carditis in an adult has hitherto not been reported, but I have witnessed such a case resulting from the too early mobilization of an acute myocarditis prior to the disappearance of the abnormalities of the E.C.G. For the chronic as for the acute carditis complete bed rest is essential.[10] Comparison of the recent cardiac research in idiopathic rheumatoid arthritis with the usual sad course and prognosis of chronic rheumatic carditis demonstrates its validity. Of the 60–70% of the bedridden or inactive patients presenting inflammatory heart disease post mortem less than 25% was detected clinically during their illness.[11 12] The management of rheumatic fever is still a test of the skill of a physician.—I am, etc.,

Dublin. A. D. McDWYER.

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Nocturnal Drip Feeding

SIR,—In pulmonary tuberculosis the patient who needs food most on account of loss of weight, fever, and malnutrition is usually he who can eat least owing to loss of appetite. Rest and other measures to decrease "toxaemia" usually check the patient's downward course by restoring appetite sufficiently to maintain a credit on the nitrogenous and calorific balance sheets, but this is not always the case. Bullying or very strong persuasion to "stuff" results in dyspepsia and disgust for food.

Although calories are being spent night and day it is usual and convenient to take in a 24-hour supply of food during the daytime, and this is of course possible except when the appetite is poor. It would seem rational therefore to use the night as well as the day for feeding, and this would be most easily done by a nocturnal drip feed (N.D.F.) of hydrolysed protein and glucose. N.D.F. offers the following advantages: (1) Almost empty stomach all night and so unlikely to encourage nausea and feeling of fullness; (2) would not mean waking for meals in night; (3) would give "round the clock" nutrition, so that patient would absorb almost two days' food in one day; (4) would conquer the difficulty that anorexia puts in the way of high-calorie and high-protein diet; (5) would not interfere with appetite for next day's food.

Patients will co-operate if it is explained that they are getting the equivalent of two beef-steaks while they sleep. Hydrolysed protein is easy to obtain. A metal reservoir, a Ryle's tube, and glass drip connexion are the simple requirements. No experimental proof of effect is here offered. Those who care to try the suggested method will find that the "proof of the pudding is in the eating."—I am, etc.,

London, N.21. F. A. NASH.

Physics in Medicine

SIR,—I have read the article on the implication of physics in medicine by my learned teacher Prof. F. L. Hopwood and his distinguished colleagues (Feb. 15, p. 261) with considerable interest. As a first-year student I often had heart-burnings as to how much of the physics I was being taught had any direct bearing on my future status as a medical practitioner. I came to the conclusion that apart from its being a useful exercise in mathematical deduction and scientific observation it could be usefully pruned of many of its components. I feel that the mechanics section and a good deal of that devoted to heat could be considerably reduced in amount. To compensate for these reductions the time saved could be given up to a study of the elements of atomic physics and of the groundwork of physics as it is reflected in subsequent radiodiagnosis and radiotherapeutics. In this connexion instruction for the student in the handling of the *x*-ray apparatus could be of some service. A practitioner with a knowledge of the operation of, e.g., a portable unit could be a useful member of any medical fraternity.

It would be useful too if special sessions were arranged in the clinical years for study of film interpretation. How few of us, I feel sure, are competent to read normal, let alone abnormal, radiographs in a correct manner! How often do the reports of fellow radiodiagnosticians conflict the one with the other, especially in the elucidation of thoracic and cranial lesions with their frequent intriguing shadows!—I am, etc.,

Devonport. J. B. GURNEY SMITH.

Endocrines in Gynaecology

SIR,—May I add, somewhat belatedly, to the comments you have already published on Mr. Aleck Bourne's paper (Jan. 18, p. 79)? As Dr. G. I. M. Swyer (Feb. 1, p. 198) and Dr. S. L. Simpson (Feb. 15, p. 270) have already said, there is nothing new in the concept of varying tissue sensitivity to hormones, but there was good reason for Mr. Bourne to stress it, for it is often neglected in practice. One may add to the examples already given and point out that sensitivity may vary from individual to individual, which makes the expression of exact dosage difficult, from one side of an individual to another (as in unilateral gynaecomastia, fibroadenosis, and acromegaly), from one part of an organ to another (as in nodular goitre and again in fibroadenosis of the breast), as well as from one whole organ to another, as in the example quoted by Mr. Bourne and in a patient once under my care who suffered from both atrophic rhinitis and fibroadenosis of the breasts. In this unfortunate patient I found that the fibroadenosis responded well to androgens, and that the atrophic rhinitis was rapidly relieved by oestrogens, which, however, made the fibroadenosis worse. The problem was solved by local administration of testosterone ointment to the breasts and of oestradiol in oil to the nose.

There are, however, two statements in Mr. Bourne's paper with which I cannot agree. He states that "primary amenorrhoea can never be cured." It is true that cures are rare, but I have seen two recoveries among many failures. The more recent was a young Jewess of 17 with an infantile figure, no visible or palpable breast tissue, a minute uterus, and only a trace of pubic hair. Treatment for some months with a high dosage of oestrogen caused her breasts to develop, pubic hair to grow, and her uterus to increase in size. Soon after, uterine bleeding occurred. Treatment was changed from continuous to cyclical, and after six regular periods oestrogen (withdrawal bleedings had occurred) was stopped. The periods remained almost regular. Two years later (three years from the beginning of treatment) she married and within four months was pregnant. Her baby is due next April. It is possible that I am committing the *post hoc propter hoc* fallacy, but I don't think so.

Mr. Bourne is also too dogmatic in his remarks about the use of androgens in metropathia. Though it is certainly true that a high proportion of patients must ultimately come to *x* rays or hysterectomy, many severe cases can be kept in good health by an occasional course of methyl testosterone, which is comparatively cheap and which does not produce virilism in the dosage required. A few milder cases make a complete and apparently permanent recovery. Hysterectomy is far too often performed in cases of menorrhagia. No harm is done and much unhappiness is avoided by a preliminary trial of medical treatment. I feel sure that Mr. Bourne, whose work with Lord Moran on the use of thyroid extract in the menorrhagia of puberty must have saved many young girls from hysterectomy, would be well advised to give a further and perhaps more energetic trial to the use of methyl testosterone in the menorrhagia of riper years.—I am, etc.,

London, W.1. RAYMOND GREENE.

Chronic Middle Ear Suppuration

SIR,—I think that a description of treatment of chronic middle ear suppuration by a very simple and efficient method is worth while. These cases can be divided into two classes: (1) Cholesteatoma. (2) Other chronic cases of otitis media—I am not considering such conditions as malignant disease, tuberculosis, etc. The nature of the discharge is of some importance—that is, whether it is mucoid or purulent—but a condition of great importance is the odour of the discharge. There may be no odour; these cases are amenable to simple treatment. On the other hand the discharge may have an offensive odour, which may be either the nauseating stink of a true cholesteatoma or simply a bad smell from putrefaction. Chronic middle ear suppuration is of course primarily due to infection from the upper respiratory tract, including the nasal accessory sinuses, and proper care of these conditions is essential in treatment. However, there are other factors of importance such as the general health, the patient's constitution, family and economic considerations—these conditions all require attention.

Doctor and patient should both fully understand that the essence of treatment is to keep the ear clean and dry. It must also be realized that in the presence of a perforation of the tympanic membrane, unless the Eustachian tube is completely obstructed, reinfection of the middle ear is constantly recurring and is inevitable when sepsis from the upper respiratory areas is forced into the middle ear by blowing the nose, etc. If the perforation is completely sealed then this "through channel" of infection is eliminated. The size of the perforation has little bearing on the actual treatment; if the perforation is so small that the tympanic cavity cannot be easily treated it means that the suppuration is very mild and will recover itself if permitted; if the perforation is larger, access to the tympanic cavity is facilitated.

The first step is to eliminate the odour, and this can be done by thorough mechanical cleansing; and in doing this the shape of the auditory canal must be realized. Patients can be instructed to do this by the method taught by Prof. Neumann, of Vienna, rolling a small fine-pointed cone of wool about 1 in. (2.5 cm.) in length and gently tucking this into the canal, repeating until every corner is cleansed properly, and then instilling one or two drops of alcohol. This is done as often as is necessary to keep the ear clean and dry; it is a safe method, is ideal for children, and the patient's friends can be taught. In a week or ten days, if properly carried out, the odour, except in the presence of cholesteatoma, will have gone, and the next line of treatment is used. This consists of what I call the "pipette and powder" treatment, and again the patient's relations can learn to carry it out.

The patient lies on the side with the ear to be treated directed upwards. The ear is carefully mopped out, and then irrigated with aqueous solution of acriflavine (1 in 1,500) by means of a rubber-capped pipette. By squeezing and releasing the rubber cap the tympanic cavity is gently washed out, unless the perforation is so small that it is unnecessary. A few pipettefuls of acriflavine will cleanse the cavity. It is now carefully but thoroughly dried once more, and the ear canal is *filled* with powder which is actually tamped well into the canal, and then a small pledget of gauze inserted to prevent the powder from falling out. The nature of the powder is of minor importance; it is not the chemical action of the powder that is important but the mechanical "corking" of the perforation to prevent infection being forced into the middle ear. I have used plain boracic powder, boracic and iodine powder, penicillin and sulphanilamide powder. The results are the same. Plain boracic powder is "lumpy" and not so easy to manipulate. Penicillin and sulphanilamide powder is a fine dry powder easy to use, but may be followed by an allergic dermatitis. Boracic and iodine powder (0.1% iodine) is a good powder, but occasionally a patient is sensitive to iodine.

If discharge persists the powder will quickly be softened, and to the non-expert gives the appearance of profuse pus. In such a case it is necessary to repeat the treatment until the powder is found to remain dry. When the powder remains dry all that is necessary is to put in more powder as often as necessary to keep the ear filled. This "cork" or "plug" of powder is kept in the ear for three months or more, but it must on no account be allowed to be wetted—it must be kept clean and dry. After three months the powder may be allowed to disintegrate. It interferes very slightly with hearing after the first few days. It is surprising to find the number of even fairly large perforations that are found healed when this powder eventually disintegrates. I have not used this method with a genuine cholesteatoma, but then genuine cholesteatoma is becoming rarer, being merely a result of neglect or wrongful treatment; the best treatment is prevention. The "pipette and powder" treatment is equally applicable to the later stages of acute otitis media, which is the precursor of chronic otitis media, and which is so often prolonged by reinfection by means of the "through channel," nose blowing, etc.

Once more I wish to stress the point that in the conservative treatment of chronic middle ear suppuration it is necessary to realize that the condition is much more than just a localized infection in an area which appears to be somewhat difficult of access. When properly administered the sulphonamides and penicillin are of considerable value, but their use does not prevent reinfection, and the principles enunciated—namely, the keeping of the ear clean and dry and the prevention of the "through channel" of reinfection—must be observed.—I am, etc.,

Brisbane, Queensland. ERNEST CULPIN.

Limb Haemangiectasis and Cirsoid Aneurysm

SIR,—In regard to examples of the association of developmental haemangiectatic hypertrophy of limbs associated with cirsoid aneurysm I think there is still a tendency to regard the cirsoid aneurysm as the cause of the limb enlargement instead of recognizing that both conditions are due to some developmental abnormality, probably during early intrauterine life, in the nervous regulation of the blood supply and nutrition of the affected part. Certainly the same type of limb enlargement occurs in the absence of any actual cirsoid aneurysm. Typical cases are distinguished by increased length of long bones in the affected extremity; often there are vascular hamartomata in the affected extremity, sometimes in other parts of the body. The bony enlargement seems to be connected with increased arterial blood supply, possibly associated with increased size of the nutrient artery. Occasionally apparently similar cases are met with in which no enlargement of long bones can be made out. Can it be because in such cases the nutrient blood vessels of the bones are not involved? Sometimes parts of the body other than limbs have been similarly affected by what one may term "haemangiectatic hypertrophy." Some cases of hemihypertrophy appear to be the result of a similar developmental agency. Probably the rare cases of monstrous "true gigantism" of fingers, toes, hands, or feet are due to a somewhat different developmental agency.

My excuse for writing this letter is that I have taken continuous interest in the subject since my article on "Haemangiectatic Hypertrophy" in 1918 (*Brit. J. Child. Dis.*, **15**, 13). Since then my name has frequently been attached to the syndrome in Britain and other countries as well as the name of Klippel, who stressed the "osteo-hypertrophic" changes associated with the dilatations of blood vessels (cf. also F. P. Weber, "Angioma Formation in connexion with Hypertrophy of Limbs and Hemihypertrophy," *Brit. J. Derm. Syph.*, 1907, **19**, 231).—I am, etc.,

London, W.1. F. PARKES WEBER.

Erythroblastosis Foetalis and Breast-feeding

SIR,—The case report by Dr. Rosemary Davies (Jan. 25, p. 138) of a breast-fed child with erythroblastosis foetalis in which recovery followed the cessation of breast-feeding calls for some comment. The recovery may well have been due to the transfusion of 170 ml. of blood—about one-half of the child's total blood-volume—two days after the institution of artificial feeding. It is also well known that infants who for some reason have lost much blood frequently require more than one transfusion before recovery occurs.

It has been repeatedly shown[1,2] that small quantities of protein, capable of producing immunity responses and thus presumably undigested, are absorbed in infants, and hence the theoretical possibility that agglutinins could be absorbed from breast milk. But the amount of undigested protein absorbed in this way is minute compared with the total quantity ingested and digested, and it would be surprising if, of the agglutinins present in breast milk, sufficient could be absorbed to be of any clinical importance. The presence of Rh antibodies in breast milk does not necessitate their absorption, and as far as I am aware no direct evidence of the intestinal absorption of Rh antibodies has been recorded. It would be a very great pity at our present

state of knowledge if infants with haemolytic disease of the newborn, or, what would soon follow, if infants with anaemia or jaundice suspected of being due to Rh antibodies, were subjected to the known increased hazards of artificial feeding when there is as yet no evidence that breast milk is in any way harmful in these cases.—I am, etc.,

JOHN L. EMERY.

Sheffield, Yorks.

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Women Doctors and Service Specialist Appointments

SIR,—The Medical Women's Federation has been informed of the extreme difficulty which is being experienced in finding replacements from civilian life for the specialists (men and women) in the Services whose release is behind all other medical personnel—in the Army, for instance, it is 12 groups behind. There is at present no conscription of women. As many women doctors know, in June, 1945, the Ministry of Labour, by a Cabinet decision, abandoned the call-up of women and the doctors were included in the general ruling. The Medical Women's Federation wrote a letter at the time to the Ministry of Labour; which was afterwards reported in the medical Press, pointing out that this exemption was contrary to the wish of medical women; it deplored the position and said that in professional matters women doctors wished to be treated as doctors and not to have special privileges as women. Similar representations were made by the Services themselves and by the Central Medical War Committee. The Ministry of Labour, however, was not willing to rescind the order as applying to women doctors, but pointed out that they were at liberty to volunteer.

It must be admitted that recently the Service intake of volunteer women doctors has been very small; this has had the unfortunate consequence of delaying the release of serving specialists, both men and women, and of necessitating the call-up of an unfair proportion of men doctors, many approaching 40, on whom it may inflict serious hardship. Young women of the graded or full specialist class must realize furthermore that their immunity from conscription is certainly not entirely to their advantage. B1 posts and higher hospital appointments are being reserved to a great extent for returning Service doctors or for those who are "recruitable," in order that, in the latter case, there shall be some specialists trained in due course to replace those who are now going into the Services.

The Medical Women's Federation wishes to draw the attention of all young women specialists to this urgent need, recognizing, however, that this is only a short-term measure. Long-term policy involves the consideration of the conscription of women doctors equally with men, but this is bound up with the rectification of certain anomalies in the status of medical women serving with the Army and R.A.F. In spite of this, however, the Federation urges eligible women specialists to offer their services *now*, chiefly for the sake of those who are being retained unwillingly or called up, and perhaps also for their own sakes as, on leaving the Services, they will be in a strong position in applying for further appointments.—I am, etc.,

MARY F. LUCAS KEENE,
President, Medical Women's Federation.

Bromley, Kent.

Food for Invalids

SIR,—I have been reading the interesting debate in Parliament on Jan. 22 (*Journal*, Feb. 1, p. 204) on this subject. The accounts given by the *British Medical Journal* and by the *Lancet* are substantially the same, with one very important exception. The following paragraph which appears in the *Lancet* does not appear in the *British Medical Journal*:

"Mr. S. Hastings asked the Minister if he would give figures to compare the amount of priority milk ordered by doctors in residential areas such as Bath, Bournemouth, Hove, or Hampstead with that in industrial areas like Tyneside or South Wales. Mr Strachey: In December, 1946, the number of domestic consumers obtaining priority milk on medical grounds per thousand of population was Bath and Bathaven, 31; Bournemouth and Christchurch, 38; Hove and Brighton, 33; Hampstead, 47; Tyneside, 15; S. Wales, 15."

I am not for the moment concerned as to what is the explanation for the interesting fact that there are more than three times as many persons receiving priority rations in Hampstead than in Tyneside, but it would be interesting to know why the *British Medical Journal* omitted to report this question and Mr. Strachey's answer to it.—I am, etc.,

ROBERT PLATT.

University of Manchester.

*** Because our Parliamentary correspondent did not report the passage quoted above, presumably in order to allow space for a fuller report of other matters excluded from the pages of the *Lancet*.—ED., *B.M.J.*

Non-agenized Bread

SIR,—I care not for the finer points in the differential diagnosis of hysteria in dogs, neither would I wish to dissuade white-bread eaters from consuming agenized flour—bleached with NCl_3—should they so wish to do. I have, however, a foolish personal prejudice against eating bread made from flour which produces fits, whether hysterical or not, in dogs and which may cause their death after a few weeks.

Is it possible now to obtain bread made from plain whole meal, not improved in any way and with no extraneous substance added or none of the whole meal removed? Is there any easy test one could apply to make sure that the flour has not been improved—something like the "starch and iodide" test for free chlorine? Finally, Sir, I should be grateful for information as to where, pending any action which may be taken by the various ministries concerned, I can obtain guaranteed non-agenized bread in the London area.—I am, etc.,

W. MUNRO LESLIE.

Harrow, Mddx.

Endogenous Depression in General Practice

SIR,—I first hasten to inform Dr. A. L. Rowson (Feb. 15, p. 271) that my question was asked in good faith and was not intended to be either rhetorical or rude. I did not realize that he had had institutional experience in psychiatry. I imagine that all who work in mental hospitals would be glad to see both change and development. Many experienced psychiatrists have in fact practically pleaded for certain improvements, and I see no objection to a Royal Commission.

But as I do not think that things are as bad as Dr. Rowson would have us believe I would take up a few of his points and emphasize some safeguards. The first is the increasing use of admitting patients without certificates, either as voluntary boarders or temporary patients. No one is allowed to detain a voluntary boarder for more than three days after he has given in his notice to quit; so if either the patient or his relatives think he is unhappy, or not making progress, he can go.

Then as regards E.C.T., this is never given or continued without the patient's consent, and if no progress is being made the treatment is stopped. I simply do not understand the statement—no reference being given—that patients fear electrical convulsions, though this was not uncommon when chemical convulsants were in use. Is Dr. Rowson perchance thinking of intravenous cardiazol or its analogues? In any case the patient can always refuse a second treatment. Nor, I submit, is E.C.T. customarily given without previous psychotherapy and diagnosis. The development of the clinic to which the doctor either brings or sends his patient has great possibilities and, let us hope, will be used more frequently still.—I am, etc.,

A. KNYVETT GORDON.

Cambridge.

*** This correspondence is now closed.—ED., *B.M.J.*

Treatment of Patients

SIR,—Dr. Kenneth Sheldon (Feb. 1, p. 195) drags up the old, old accusation that there is one law for the private patient and one for the panel. He talks about "the proud boast of the principal has been how many patients he could dispose of in the hour . . ." Why not? Surely patients have no wish to sit for hours in a doctor's waiting-room while the latter spends twenty minutes on each case of impetigo or scabies?

One can very easily dispose of, say, fifteen cases of "repeats" of medicine, certificates, injections, and short "spot diagnoses" in from half to three-quarters of an hour—and these are what the bulk of our surgeries consist of—and inform the others that their case may take some time to go into and that it would be preferable to do it in their own homes at their own bedside.

At a time when parts of the lay Press are more than usually critical of our profession it seems a pity that these accusations are made by our own colleagues against men and women who also "like time to examine their patients," but do not always find it necessary to exalt their own "professional consciences." —I am, etc.,

Waddesdon, Bucks. W. A. BELLAMY.

Diet and Canine Hysteria

SIR,—Pyridoxine—vitamin B_6—(*J. Nutrit.*, 1938, **16**, 197) is essential to the dog. Deficiency causes convulsions like epilepsy, dermatitis, and a microcytic hypochromic anaemia (*Amer. J. med. Sci.*, 1940, **199**, 518). Treatment with pyridoxine cures. May not this be the cause of canine hysteria or epileptiform fits referred to in Mr. Hamilton Kirk's letter (Feb. 1, p. 200)?—I am, etc.,

Blyth, Northumberland. A. G. NEWELL.

Eye Surgery

SIR,—I believe there is no doubt as to the validity of the justification which Mr. H. B. Stallard puts forward (Feb. 1, p. 200) for his views on Krönlein's operation and for his statement with regard to the relative radiosensitivity of glioma of the retina as compared with a malignant melanoma of the choroid. Mr. Stallard has taken advantage of opportunities of performing Krönlein's operation which few have had. It is an operation which is not often called for, and I do not doubt that many ophthalmic surgeons of wide experience have never performed it. Mr. Stallard has done a service by bringing forward the advantages and scope of the operation and by describing the technique so clearly.

I should have thought there was no doubt as to the accuracy of the statement: "Malignant melanomata of the choroid are not so radiosensitive as glioma of the retina." The manner in which a retinal glioma can be watched to disappear with the ophthalmoscope is quite remarkable, and the fact that, as Mr. Stallard says, "A retinal glioma has disappeared, and there have been no recurrences in periods up to fifteen years after irradiation; some useful vision has been retained and the child's life saved . . ." would seem to justify the use of the term "cure." A number of cases of malignant melanoma of the choroid have been treated by radium, but I believe none has shown a comparable result.—I am, etc.,

Salisbury. R. FOSTER MOORE.

Prevention of Rust on Instruments

SIR,—With reference to the question and answer under the above heading (Jan. 25, p. 168), the inquirer asks whether any substance can be added to boiling water to prevent rusting of instruments during sterilization. The reply is substantially that "there is no time for appreciable rusting to occur" during this process. This statement is incorrect as regards cutting instruments made of a high carbon steel, for example cataract knives, whose edges are rapidly spoilt by corrosion when boiled in 2% Na_2CO_3. While complete protection during water boiling cannot be achieved without using solutions of ammonium or sodium hydroxide (whose carry-over at even small dilutions might damage an eye), it is possible to reduce boiling corrosion to negligible proportions by the use of 2% A.C.10 emulsified in a 2% w/v $Na_2CO_3.10H_2O$ solution in water (*vide* Foster, Le May, and Johnstone, *Proc. roy. Soc. Med.*, 1945, **38**, 465). A.C.10 consists of 95% of a light petroleum neutral oil and 5% of a complex of sodium salts of petroleum sulphonic acids. —I am, etc.,

Leeds. JOHN FOSTER.

History of Arab Medicine

SIR,—Had your correspondent, I. B. George (Feb. 1, p. 202), been a little better acquainted with the literature of his subject, he would have known that Dr. Neligan was summarizing (Dec. 14, 1946, p. 919) a passage from the late Prof. E. G. Browne's *Arabian Medicine* (Cambridge, 1921, p. 2). Here it is:

"When we speak of 'Arabian Science' or 'Arabian Medicine' we mean that body of scientific or medical doctrine which is enshrined in books written in the Arabic language, but which is for the most part Greek in its origin, though with Indian, Persian, and Syrian accretions, and only in a very small degree the product of the Arabian mind. Its importance, as has long been recognized, lies not in its originality, but in the fact that in the long interval which separated the decay of Greek learning from the Renascence it represented the most faithful tradition of ancient wisdom, and was during the Dark Ages the principal source from which Europe derived such philosophical and scientific ideas as she possessed."

Most handbooks of the history of medicine say much the same thing, but it might be objected that most of their authors were not well acquainted with Arabic literature at first hand. Prof. Browne was.

Were it not for your correspondent's onslaught on the late Dr. Neligan, one might take his letter for a hoax. Thus he assures us that the Christian Church regarded belief in infection or contagion as heretical, that only a Moslem physician dared to say that the "black death" was spread by infection and contagion and that he anticipated Pasteur by five centuries. Well, the best contemporary account of the epidemiology of the pestilence of 1347–9 was that of Guy de Chauliac who observed it in Avignon; his account is reprinted in Haeser's well-known *Lehrbuch* (vol. 3, pp. 175–6). According to de Chauliac the disease "was so contagious, *particularly when there was blood in the sputum* (italics mine), that not only by staying with the patient but by merely looking on him one took the disease from another, so that people died without nurses and were buried without priests." Guy de Chauliac was neither a Moslem nor a heretic, but the Pope's own surgeon. The words I have italicized show him to have been a good observer. The plague broke out at Avignon in January, 1348, and was at first primary pneumonic plague. Later in the year it was clinically bubonic plague. The former is of course infectious from person to person, the latter not. It would be interesting to know when the Christian Church decided that it was heretical to believe pestilences were contagious. Isidore, who was, I think, a bishop, roundly stated (about 700 years before the "black death"): "*Pestilentia est contagium quod, dum unum apprehenderit, celeriter ad plures transit.*" It is hardly necessary to say that what Galen, Isidore, de Chauliac, and the Moslem physician understood by contagion or infection had no relation to Pasteur's doctrine of *contagium vivum*. The analogy is with the conduction of an electric current or, better, with the sympathetic vibration of a tuning fork picking up its fundamental note. It was, as Prof. Singer pointed out more than thirty years ago, the Italian physician Fracastorius who first took the step of postulating a living contagium. Very few of his contemporaries realized the importance of his suggestion, but, as he dedicated his book to a cardinal, the notion was not regarded as heretical.

I suggest that Dr. Neligan was a good deal better acquainted with the history of medicine than your correspondent.—I am, etc.,

MAJOR GREENWOOD.

Colonial Medical Service

SIR,—In recent months a number of disparaging letters from members of the Colonial Medical Service have appeared in your *Journal*. Obviously the facts stated were true of particular cases, though they would appear to portray one side of a picture only, to the entire exclusion of the other. These letters might easily have turned me from my decision to join the Service had not I applied out of some sense of vocation.

As a very junior member of the Service, though not so young in the profession, I am not qualified to make generalizations, but for the sake of those who might be deterred in their choice of a career I will record briefly some of my first impressions of work in Africa. Although in a relatively remote outstation, I have found ample scope for my bent, which happens to be surgery, and am already experiencing the truth of a statement made to me on my way out to the effect that "your work will be just what you make it. The natives will soon discover your bent and your abilities or shortcomings, and every case successfully dealt with will inevitably produce two more." This generalization refers equally to preventive medicine, and some of my predecessors have left indelible memorials written on the landscape.

Admittedly administration can be irksome when one would rather give one's time to other calls, but ample time in one's

programme can be made for clinical work. Facilities are primitive compared with home standards, and although a photograph of an English theatre is liable to produce a mild nostalgia there is a definite satisfaction to be found in improvising and "making do." A medical officer is expected to practise everything relating, no matter how remotely, to his profession, but each has his own bent, and in my short experience I have not been disappointed by lack of interesting work. One of the great sources of satisfaction is that with much material at hand one can select for hospital treatment only those for whom improvement or cure can be almost guaranteed. How different to many of the patients who take one's time in dispensaries at home. All I have written refers to the only station of which I have experience, but I trust it will serve to illustrate that there are localities in which a doctor prepared for a relatively lonely existence will find life not only fertile with interest but offering much compensation, rather in the knowledge of suffering relieved than in salary increments. —I am, etc.,

EAST AFRICA.

*** This correspondence is now closed.—ED., *B.M.J.*

POINTS FROM LETTERS

National Health Service.—Dr. A. E. CLAYTON (Shrewsbury) writes: The vocation, aims, and work of a doctor may be expressed as follows: (1) To assuage human suffering and misery both of body and mind, however caused, with a view to the restoration of health; (2) failing the latter, to make the conditions of living as tolerable and pleasant as possible. These are simple words but they cover an immense field. To accomplish these aims certain values ought to be paramount—for example, there is the value of a doctor's sympathy with his patient, particularly when issues of life and death are at stake; his sense of unity with him in the sharing of a common heritage. These are the values integral to an enlightened humanitarianism, the values of the Christian ethos, with all they imply, the value of a patient's belief and faith in his doctor. . . . Are these values denied? If so, then I don't think it much matters which framework you have for a health service or any other activity. . . . Within the chamber of human conflict with disease and in many other situations the State is not competent, and never can be, to assess the values and control the operations of the human spirit. In the sixteenth century the issue was King *v.* Parliament; in 1947 it is the State *v.* the integrity of the human personality. The profession, though it may not know it, is "the thin red line," and whether we know it or not the public certainly does not.

Dr. L. LEVY (Great Yarmouth) writes: I would ask the members of the B.M.A. if they are prepared open-eyed to surrender themselves and the profession to Government muddle and mismanagement. It is perfectly certain that if half or even a third of the G.P.s in the country refuse to work the Act it must be utterly unworkable by the remainder, and will be completely discredited.

The Need is Unity.—Dr. J. B. DAVID (Trebetherick, Cornwall) writes: What strikes a comparative newcomer to the arena of battle is the apparent disunity among the profession. Can it be wondered that abroad we thought in so muddled a fashion and called the B.M.A. leaders "obstinate old reactionaries"? We were not convinced of the implications of anything. As things are at present there is no inducement to the Minister to have one iota of the Act altered; he believes, probably rightly, that he only has to start the scheme and nearly half the profession will enter at once. Of a truth the doctrine of "divide and rule" has come home to us with a vengeance. What are we to do? I do not know. But unless we can become more united as a profession and are able to produce an 80% "No" we shall find ourselves passing down the broad and easy road to slavery.

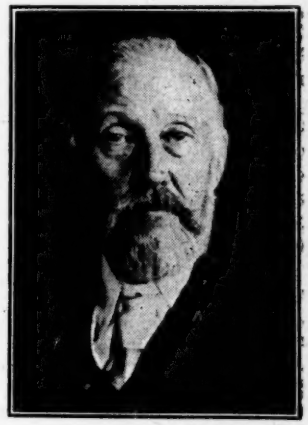
An 84-hour Week.—Dr. R. DINGWALL KENNEDY (Edinburgh) writes: Dr Gerald Rosemont's suggestion (Feb. 8, p. 233) of an 84-hour week for G.P.s calls for certain amendments. . . . He asks: "Who will take his calls when he is out?" I am not quite clear what is meant by this question. From what follows in Dr. Rosemont's letter it would appear to mean: Who will answer the door, telephone, etc.? And if that is so, the answer is simple: the same person or persons doing so now, unless and until the promised clinics are forthcoming and the doctor's house becomes, for the first time in history, his castle. If on the other hand the question really asks who will act as locum in emergency calls, the answer is not to be found in an 84-hour week. . . . If a night-duty rota can be arranged, so can a half-day and holiday rota. During the war . . many small medical communities worked out their own self-help scheme.

Obituary

THOMAS WILLIAM SHORE, O.B.E., M.D.

A link with the St. Bartholomew's of the last century has been severed by the death, on Feb. 19, at the age of 85, of Dr. T. W. Shore, whose close connexion with the hospital and school went back for sixty years.

Thomas William Shore was born on Nov. 5, 1861, and was educated at Burnley Grammar School and at Hartley College, Southampton. Coming to London at the age of 18, he entered Bart's with a scholarship in science. Many prizes fell to his lot during his student career, including first-class honours in zoology and botany. St. Bartholomew's in the early 'eighties was a very different place from to-day, though it was equally stimulating, and its teachers and clinicians, while fewer, were equally renowned. It was before the advent of the telephone or the motor-car, and Shore used to recall that when a member of the staff was wanted at night a porter was sent in a hansom to fetch him. The number of students was not smaller than it would be now in a normal year, but the visiting staff numbered only twenty—four full and four assistant physicians, a corresponding number of surgeons, two physician accoucheurs, and two ophthalmic surgeons.



["Topical" Press.

It was a brilliant staff and included several men who later became presidents of the Royal Colleges. At this time, too, "Bart's" was almost a forcing ground for medical baronets. Shore was house-physician to Samuel Gee, an outstanding teacher at the bedside, whose aphorisms were collected by another of his students. In those days a house-physician was appointed for a full year.

In 1884, the year after he qualified, Shore was made assistant demonstrator in physiology, and after four years became full demonstrator, an appointment always considered a stepping-stone to the medical school staff. From 1886 onwards he was lecturer in comparative anatomy, and in 1892, when the medical curriculum was enlarged to a five years' course, he became lecturer in biology. These lectureships he retained until 1909, and there are many who recall him as a singularly able teacher. His biology lectures were illustrated by some most graphic work on the blackboard, and it has been said that his drawings of the division of cells and the development from the cell to the adult stage were as enlightening as Canti's famous film, and even more instructive because they were slower.

In 1891 he became warden of the residential college, a post held when Shore himself was a student by another famous son of Bart's, Sir Norman Moore. He occupied the house to which Sir James Paget once brought his bride. This position, with the secretaryship of the School, Shore held until 1898, and in it he revealed his great ability as an educationist and administrator. His reign as dean began in 1906 and ended with his retirement in 1930. Great changes took place in the College and the Hospital during this period—the completion of the library, the building of the dissecting-room, the establishment of new lecture theatres, biological laboratories (his special interest), the out-patient department, the surgical and pathological blocks, and the nurses' home.

Shore gave the best of his strength and affection to St. Bartholomew's, but he found time for a good deal of work outside. In 1919 he was made a member of the Consultative Council of Medical and Allied Services. For a short period he was examiner in natural history to the University of Aberdeen, and for longer periods examiner in the same subject to the Army and the Indian Medical Services and in biology to the Royal College of Surgeons. For as long as eighteen years he was

examiner in science to the Naval Medical Service. He helped the British Medical Association, to which he was originally elected in 1894, on some headquarters committees, including the Central Medical War Committee of 1914–19, to which he gave invaluable service as chairman of a subcommittee. When the Association met at Cambridge in 1920 he was vice-president of the Section of Medical Education. In addition to numerous articles in the scientific journals he wrote a book, *Practical Biology*, published in 1887. One of his sons by his first wife is Dr. T. H. G. Shore, of Plymouth.

In his retirement Dr. Shore lived first at Upper Norwood, within easy reach of his old haunts. The news of his death, which we recorded briefly in our issue of March 1, will be received with sadness by innumerable old Bart's men, who remember him with gratitude both for his patience and skill as a teacher and for his labours for medical education in general.

PIERRE JANET, M.D.

Pierre Janet has died in Paris at the age of 87, and the world has lost one of the greatest clinicians of our age in psychological medicine. A pupil of Charcot, he had learnt to recognize the existence of psychogenic disorders as distinct from physical, for Charcot had experimentally reproduced under hypnosis disorders like hysterical paralysis. No one has had a wider experience than Janet of such disorders, nor was there a more acute observer. His descriptions of the clinical manifestations of these disorders surpass in extent and accuracy anything that we have elsewhere.

Janet's ideas as to the nature and origin of the psychoneuroses, based as they were on his earlier philosophic studies, are the common-sense theories most acceptable to the ordinary medical practitioner, especially as he fulfils more than any other clinician of the past the modern demand that the human personality of mind and body should be treated as a unity. He viewed the personality as a synthesis of all our impressions and experiences in life. At any special time we have a certain amount of vital energy. If that energy is at a high level the personality functions as a synthesis, we feel fit for anything and capable of meeting all our responsibilities in life; if at a low level, we shrink from life and feel it a burden even to entertain a friend. The psychoneuroses are due to a lowering of the psychological level so that the personality ceases to function as a whole. When there is simply a lowering of psychological tension the personality is enfeebled, so that we have the condition of psychasthenia (obsessions, neurasthenia, etc.) with indecision, lack of adaptation, and withdrawal from reality. (We all know that we are more liable to neurotic reactions when we are run down.) In other cases the tension is so low that the personality instead of maintaining itself as a synthesis falls apart, in which case there appears dissociation or splitting of the personality, as in hysteria, somnambulism, and so forth.

Janet's theory of dissociation, therefore, differs from that of Freud. In Janet's view it is the result of lack of energy to hold the personality together, whereas according to Freud dissociation is due to active repression of what is unpleasant. The lowering of psychological tension is sometimes constitutional, sometimes due to illnesses, sometimes due to emotional strain, or to psychological causes like worry. It is this linking up of the physical, emotional, and psychological factors by Janet which appeals to the ordinary physician as being philosophically sound "common sense," and it is surprising that he has not more adherents in the medical profession in this country. But the great vogue of Freud, and his derivatives, is probably to be found not only in his deeper investigations into the causes of neurosis and their purposive nature but in the fact that his methods have secured better therapeutic results than those of Janet. Both of them revived the original trauma which caused the hysterical symptoms, both (at first) used hypnosis to do so, and both got emotional responses; but Freud got results by his method of abreaction while Janet was not so successful. We can only suggest that this difference was due to the fact that, while both revived the experience and the emotion, Freud linked it up with the conscious mind by getting the patient to "talk it over" afterwards, with the result that the dissociation was "reduced," whereas Janet does not appear to have done so, so that both the dissociation and the symptom persisted. But psycho-analytic theories would be none the worse for some of the balance of Janet's philosophic views which are at the same time practical and convincing. Let us hope that Janet's death may stimulate in this country a renewal of interest in his works, which are well worthy of study.

Pierre-Marie-Felix Janet was born in Paris in 1859, and took his degree in philosophy in 1882, and his M.D. in 1893. He was attached to the Salpêtrière, and then appointed to the University, ultimately becoming Professor at the Sorbonne from 1898-1902. From then onwards he devoted most of his life to research, became President of the Académie des Sciences Morales et Politiques in 1925, and gave many lectures abroad.

J.A.H.

Dr. ANDREW PATERSON died suddenly on Feb. 11 at the age of 40. Only three months ago Dr. Paterson had been appointed a senior physician at the Maudsley Hospital Postgraduate Medical School, London. He qualified at Edinburgh in 1935 and proceeded M.D. in 1942. In 1938 he was appointed assistant in research in psychiatry to the Regius Professor of Physic at Cambridge.

Mr. O. L. Zangwill writes from the Institute of Experimental Psychology at Oxford: As research psychologist to the Brain Injuries Unit in Edinburgh during the war it was my privilege to work for some years in very close association with the late Dr. Andrew Paterson. Perhaps, therefore, I may be allowed to pay a brief tribute to his outstanding qualities as a research psychiatrist. Andrew Paterson combined remarkable clinical acumen with a deep concern for the fundamental problems of psychology and philosophy. His interest in the theory of knowledge, bred of an early training in philosophy, led him to seek in the psychological analysis of the effects of brain injury a key to the basic problems of perception and thought. In developing his ideas, moreover, he was ever prepared to welcome the co-operation of all whose interests lay along lines similar to his own. Towards experimental psychologists in particular his attitude was one of unfailing sympathy and co-operation. He was one of the all too rare clinical psychiatrists who take seriously the problems and methods of experimental psychology. By Andrew Paterson's premature death not only has British psychiatry lost one of the most distinguished of its younger practitioners but general psychology is the poorer for the loss of a devoted ally and fellow-traveller. His memory will remain an inspiration to all who see in the elucidation of brain mechanisms the most fruitful approach to the fundamental problems of human experience and conduct.

Dr. ELIZABETH HAMILTON BROOK died in an Edinburgh nursing home on Feb. 22. She qualified M.B., Ch.B. at Edinburgh in 1906 and took the D.P.H. in 1910. In 1915 Dr. Brook was a member of one of the teams of doctors and nurses sent out by the Scottish Women's Hospitals to Serbia. She rendered valuable service there under the leadership of Dr. Elsie Inglis. Most of her work was done at Kragujevatz, where typhus cases were arriving in large numbers every day. On returning to this country Dr. Brook continued to work in the public health service in Lancashire until her retirement some years ago.

Dr. G. A. Auden, Threlkeld, Cumberland, writes: May I be allowed to correct a printer's error in the obituary notice of Dr. BRICE COLLYER (Feb. 1, p. 203)? Langdon-Down should be Langdon-Brown, who succeeded Horder as house-physician to Dr. Samuel Gee. I think too that it was not James Berry but his brother Arthur who was his contemporary at Whitgift School, for the former was senior to Collyer by ten years. Arthur Berry was senior wrangler in 1886 and was elected a Fellow of King's College, Cambridge. Another contemporary and close friend of Collyer's was W. M. Geldart, who became a Fellow of All Souls and Vinerian Professor of English Law at Oxford. It was my privilege to enjoy his friendship since he was Gee's house-physician in 1894. At that time he had two great heroes—Cromwell and Napoleon, a drawing of whose bust hung over his mantelpiece in his rooms. But his interests were many and diverse, combined with a remarkably accurate memory. He was never tired of quoting the terse and characteristic sayings of Dr. Gee. When I spent a few days with him immediately before Christmas he repeated long pieces from Wordsworth, Tennyson, and Shakespeare without hesitation and with manifest enjoyment. This accuracy of memory extended to his clinical work and thus enhanced his powers and acumen as a physician. He greatly enjoyed travelling abroad, to South Africa and the Mediterranean and on the Continent, with his wife, whose sudden death in 1941 broke a very happy and close companionship and left a terrible gap in his life.

Universities and Colleges

UNIVERSITY OF OXFORD

In a Congregation held on Jan. 23 the following degrees were conferred:

B.M.—G. Freeman J. B. Walker, E. J. Madden, J. Gask, R. A. L. Leatherdale.

UNIVERSITY OF CAMBRIDGE

The following medical degrees were conferred on Jan. 31:

M.D.—J. R. Bolton, R. F. Tredgold, B. J. O. Winfield, A. R. Kelsall, W. H Tattersall.

M.B., B.CHIR.—*A. V. Adams, *E. M. M. Besterman, *G. Raperport, *J. Fiddess, *D. Seymour, *E. B. Davies, *P. A. Emerson, *A. D. R. MacAuslan, *J. McMillan, *J. J. Morland, *J. C. Ward, J. A. Elliott, *D. C. Bradford, *R. J. Alcock, *P. W. S. Coghill, *C. S. Kirkham, *E. D. Marsh, *J. P. Paul, *J. P. Stephens, *A. D. Thomson, W. J. B. Rogers, E. S. O. Smith, *C. P. Bennett, *A. O. Chase, *W. M. B. Strangeways, *D. A. Ll. Bowen, *T. W. Backhouse, *J. P. Bull, *P. W. Rowsell, R. H. C. Robins, *J. H. Steeds, *D. W. Burnford, *K. G. Irving, *J. F. F. Rooney, *J. E. H. Stretton, *J. Crossley, *G. R. Freedman, *I. S. M. Jones, *K. S. Murray, D. G. Miller, I. R. D. Proctor, *L. C. Lancaster, *H. E. S. Marshall, *K. Till, *M. F. Smith.

* By proxy.

Titles of the degrees of M.B., B.Chir., were conferred by diploma on Mrs. S. M. Godfrey in January.

Michael Harty, M.B., B.Ch., has been appointed temporary University Demonstrator in Anatomy for three years from Jan. 1.

UNIVERSITY OF LONDON

LONDON HOSPITAL MEDICAL COLLEGE

The Liddle Triennial Prize for 1946, value £120, has been awarded to Dr. F. O. MacCallum; *proxime accessit*, Dr. Sheila P. V. Sherlock (value £50).

UNIVERSITY OF LEEDS

A week-end course in industrial medicine will be held on Saturday and Sunday, May 3 and 4, and the programme is as follows: May 3, 2.30 p.m., Dr. A. J. Amor, "The Clinical Approach to Industrial Medicine"; 3.45 p.m., Prof. G. P. Crowden, "Fatigue in Industry"; 5.30 p.m., Dr. G. R. Hargreaves, "Psychiatry in Industry." May 4, 10.30 a.m., Dr. F. F. Hellier, "Industrial Dermatitis"; 11.45 a.m., Dr. J. Vaughan Jones, "Rehabilitation"; 2.15 p.m., Dr. C. Sutherland, "Respiratory Disease in Industry." Full particulars and form of enrolment may be obtained from the senior administrative officer, the Medical School, Leeds, 2.

UNIVERSITY OF MANCHESTER

The Council of the University has approved the promotion of Frederick Arthur Langley, M.Sc., M.B., Ch.B., from Assistant Lecturer to Lecturer in Pathology, from September next.

Ralph Arthur Bailey, M.D., and Eugénie Leeson Willis, F.R.C.S., have been appointed Clinical Demonstrators in Anatomy.

UNIVERSITY OF SHEFFIELD

The following appointments were made at a meeting of the University Council on Feb. 21: *Honorary Lecturer in Public Health:* Ll. Roberts, M.D., M.R.C.P. *Honorary Lecturer in Radiological Anatomy:* J. Wilkie, M.B., Ch.B. *Honorary Lecturer in Bacteriology:* L. G. Cook, M.B., Ch.B. *Assistant Lecturer in Physiology:* A. A. Glynn, M.B., B.S. The resignation of Dr. D. J. Clark of the post of Honorary Lecturer in Public Health was received and Dr. Clark was thanked for his services to the University.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The following surgery lectures will be delivered at the College (Lincoln's Inn Fields, W.C.) at 5 p.m. on each day: March 31, Sir Cecil Wakeley, Surgery of the Thyroid Gland; April 1 and 2, Prof. James F. Brailsford, Bone Tumours; April 9, Mr. F. A. R. Stammers, Surgery of the Posterior Fossa of the Skull; April 10, Mr. Philip H. Mitchiner, Gangrene (excluding Gas Gangrene); April 11, Mr. H. S. Souttar, Surgical Treatment of the Oesophagus; April 14, Mr. L. R. Broster, Surgery of the Suprarenal Gland; April 16, Prof. R. V Bradlaw, Tumours of the Jaws; April 17, Mr. George F. Stebbing, Radiotherapy in the Treatment of Cancer; April 21, Mr. Rainsford Mowlem, Replacement of Skin Loss in Traumatic Injuries; April 23, Mr. Julian Taylor, Surgery of the Anterior Cranial Fossa; April 24, Sir Lionel Whitby, Blood Transfusion. The fee for the whole course is £5 5s. Fellows and Members of the College and Licentiates in Dental Surgery will be admitted on payment of a fee of £3 3s. Applications, accompanied by a cheque for £5 5s. or £3 3s., should be sent to the assistant secretary of the College.

Medical Notes in Parliament

FREEDOM TO PRINT

In the House of Commons on Feb. 25 Sir W. SMITHERS asked the Prime Minister if, since the use of industrial electricity was to be resumed in some areas only, he would ensure that all weeklies and similar periodicals should be suppressed or allowed to go to publication without discrimination.

Mr. ATTLEE said that to avoid discrimination, the restrictions on the publication of weekly and other publications imposed from Saturday, Feb. 15, applied equally in all areas of Great Britain. Similarly, the removal of the restrictions, announced on Feb. 21 to permit the resumption of publication on and after March 3, applied to all areas, irrespective of the resumption in the use of industrial electricity in any particular area.

Sir W. SMITHERS said: "Was the Prime Minister aware of a strong and widespread feeling that the suppression of these periodicals was for political ends?"

Mr. ATTLEE: "If the hon. Member shares that impression he had better get rid of it, because the whole point is that it applies equally to all political opinions."

Mr. FRANK BYERS: "By what statutory or other authority was this suppression made, and will the Prime Minister give a categorical assurance that there was a statutory authority?"

Mr. ATTLEE: "It was actually done by agreement——" (Cries of "Oh!")

Mr. BYERS: "In that case, is it not a fact that those people who are not members of the P.P.A. are not bound by the agreement which was reached?"

Mr. ATTLEE: "This was done by agreement."

The point made by Mr. Byers was raised again on Feb. 26 when Mr. SHINWELL said he had been asked whether there was any statutory provision for the action taken in the suppression, temporarily, of periodicals. The answer was that there was, of course, no statutory provision, but it was possible to gain the consent of those who represented for the most part the weekly periodicals.

Mr. BYERS: "Sixty per cent."

Mr. SHINWELL said there was a majority. There was naturally some discontent about the decision, but the action had to be taken, having regard to all the circumstances, and he thought the action taken by those responsible for conducting negotiations was, on the whole, satisfactory.

Mr. BYERS asked why the order said that publications "are not permitted."

Mr. SHINWELL replied that he had to rely for the most part on voluntary co-operation (Laughter) but an instruction of some sort had to be given. The parties concerned naturally sought guidance, but the matter would be disposed of very shortly. Already an arrangement had been made for the resumption of those periodicals.

Mr. BYERS: "In other words, it was a bluff!"

In the House of Lords on Feb. 27 LORD WOLVERTON asked under what statutory powers the Government suspended publication of certain periodical journals. An extremely important point was that of discrimination. The Prime Minister had stated that the course was adopted by agreement—it was understood, with the Periodical Press Association. Not all periodicals belonged to that association. The Minister of Fuel and Power had stated there was no statutory provision for the action taken. The manner in which the direction was issued was entirely unsatisfactory because it was regarded in many instances as an order. A very dangerous precedent had been established, and he hoped that nothing of the sort would occur again.

The EARL of IDDESLEIGH asked if the legal position had been made perfectly clear to the proprietors of local weekly newspapers. There had been some loose and, no doubt, quite inaccurate talk of a ban on retail periodicals. That was the wrong word to use in connexion with what was a purely patriotic compliance with the Government's wishes. A current story, which came originally from American sources, was that an American firm had offered to print and finance in dollars the weekly *Economist*, and to import it at no cost in dollars. Was there any truth in the statement that an import licence for such an edition of the *Economist* was refused and, if so, on what grounds?

LORD DE L'ISLE AND DUDLEY said the unfettered liberty of the Press—subject to the laws of blasphemy, libel, and other necessary regulations—was one of the bulwarks of our freedom. Anything which curbed or indirectly threatened it must be jealously guarded against and investigated by Parliament. He did not regard even a fuel crisis as a necessary or good excuse

for the suppression of comment on public events and particularly when, in many cases, it was intelligent comment.

The EARL OF GAINSBOROUGH asked why *Isis*, the Oxford undergraduate periodical, was included—although it was produced by hand.

LORD CHORLEY said the Government of this country had for many years past recognized the vital importance in a democratically governed country of the complete liberty of the Press, and the vital part played by the Press in moulding the opinion by which political work was guided in this country. It was in view of the gravity of the situation that action was taken to suspend publication of the periodicals for a short period. It was in no sense a censorship or attempt to gag the Press, but a necessary step in a grave crisis. It was quite impossible in the circumstances to get into touch with all the proprietors concerned. It was obviously known to those concerned that there was no statutory power under which the Government would or could suspend newspapers.

VISCOUNT SWINTON asked whether it was worth doing at all. The sentences imposed on the papers were longer than anybody, and certainly the papers, supposed. The Minister of Fuel and Power said that this would be a matter of three or four days, but it had been going on for several weeks and still there was no end. When the Minister or his representatives gave these papers the advice or instruction, were they advised or instructed that this absence of light was to last for three or four days and was it upon this comforting assurance that a proportion of the papers agreed to suspend their activities? Both Houses of Parliament had been led to suppose that there was no legal power to order this suspension.

LORD AMMON said that there was no legal sanction, but directions could be made against a firm under Defence Regulation 55. But as the ban was to be lifted on Monday next it would not be worth while to do so.

SCOTTISH HEALTH SERVICE BILL

The Standing Committee on Scottish Bills further considered the National Health Service (Scotland) Bill on Feb. 11, 13, 18, and 20. Clauses 6–20 with only minor amendments were ordered to stand part of the Bill. Discussion of Clause 21, on the provision of services by local health authorities, and of Clauses 22 and 23 was completed on Feb. 25. Unfortunately it was not possible to give any account of these proceedings in our "Pemmican" issues of Feb. 22 and March 1.

When the Committee met on Feb. 27 it was agreed that during the further consideration of the Bill the Committee should sit three days a week. Clause 24 was approved and Clause 25 was ordered to stand part of the Bill.

On Clause 26 Mr. BUCHANAN said that compulsory vaccination in Scotland had to a large extent died down and the signing of objectors' declarations had become a commonplace. The position was that while the Bill abolished compulsory vaccination all reasonable arrangements would be allowed to the medical profession for them to vaccinate. The Clause was ordered to stand part of the Bill.

A drafting amendment was made on Clause 27, and Mr. REID asked for information about the responsibility of local authorities. He asked whether it was intended that a lunatic should go to a State institution but a mental deficient to a local authority institution.

Mr. BUCHANAN said it was not the intention of the Scottish Office to work this Clause when the Bill first came into operation. He was told that mental deficiency did include lunacy but he would look into the declaration again. In many matters the Scottish Office wished to see work done by particular authorities and not imposed on the whole of Scotland. The Clause as amended was ordered to stand part of the Bill as was Clause 28.

Mr. REID asked whether Clause 29 was wide enough to ensure that there could be different appointed days for different parts of the same subsection. Mr. BUCHANAN said that Clauses 20 and 21 would operate from the passing of the Bill but the other Clauses would operate from the appointed day, April 1, 1948. It was left to the discretion of the Secretary of State to decide when and how Clause 27 should operate. Under that Clause the Secretary of State had power to fix the appointed day. Clause 29 was then ordered to stand part of the Bill as was Clause 30 on executive councils. Clause 31, which sets up local representative committees, was also ordered to stand part of the Bill.

On Clause 32, which imposes on each executive council the duty of making arrangements with medical practitioners for the provision of personal medical services, Mr. REID moved to omit the words "whether at a health centre or otherwise." He said this was one of the most important clauses because it laid down the conditions under which the whole of the medical practitioner service of the country was to be employed. Mr. HASTINGS saw no reason for these words to be left out. They had been inserted in the English measure so that there would be no ambiguity.

Mr. BUCHANAN said that when he consulted the drafting experts they did not know how the words ever got into the Bill. He was prepared to drop them as they possibly made things more ambiguous. Mr. Reid's amendment was accepted.

Remuneration of Doctors

Mr. REID then moved to insert a proviso that arrangements made under the Clause shall provide for remuneration in every case by capitation fees and might provide for additional remuneration by salary in any case where the executive council was satisfied that, owing to sparseness of population or other local circumstances, capitation fees would not provide adequate remuneration. He said that so far as he could find nothing in the Bill instructed the Government on the method of remuneration of general practitioners. At the last General Election the Labour Party policy was to have a full-time salaried medical service. Mr. Bevan, speaking on the English Bill, was at pains to maintain that policy as an ultimate objective. Mr. Reid did not know whether Mr. Buchanan agreed with all that had been said by his English colleagues.

Mr. BUCHANAN said that on the broad principles he accepted the Labour policy.

Mr. REID argued that it was a fallacy to say that because it may be right to have a quarter of the medical profession on a salaried basis it was right to have them all on that basis. In view of the Labour Party policy the Committee must take it that the aim was that a salary should be a large part of the doctor's remuneration. He did not see how that helped the young doctor unless it was said that for the first five years a man was in practice he should get a basic salary. Mr. Reid would not object to that but said the Committee could not say that Scotland was under-doctored and also that it would be extremely difficult for a young man to establish himself. He hoped that at the relevant time Mr. Buchanan would assure the Committee that although assistants were hardly mentioned in the Bill they would be worked into the scheme. At what level and for what number of patients would the Government start to pay a basic salary? It was time that the medical profession was given some information. It was likely that Scotland would be able for some time to have a larger number of doctors per thousand than in England.

Mr. BUCHANAN said that a basic salary was an essential element of the scheme although there might be one or two isolated cases where one could depart from it. There ought to be provision for the young doctor. During the war years no one had been poorer paid or worse treated than doctors' assistants. His nephew, who began with a Glasgow doctor, found that he was getting about 6½d. an hour and was packed off to all the maternity cases at night. Medical practice must be open to men on the grounds of their ability and not according to how well their pockets were filled. In 1942 the British Medical Association made a draft proposal which contained the element of basic salary. Medical Practices Committees made up of doctors alone decided where there was need for a doctor and he could then go in and start. That did not mean that he would get enough to live on. A basic salary plus capitation fee would enable a doctor without means to make his start. The basic salary should be used to attract the best kind of doctor to the poorer localities.

Mr. MCKIE said the fear and anxiety of medical practitioners in the rural areas of Scotland under this Clause was legitimate and justifiable and Mr. Reid's amendment sought to place them in a position to carry on their work in the future.

The proposed amendment was defeated by 21 to 11 and the Committee adjourned.

Control of Penicillin

Sir JOHN MELLOR on Feb. 25 said that under Order No. 731 of 1946 anyone who asked a chemist to sell him penicillin was guilty of a criminal offence unless he tendered a medical prescription. There was no longer any shortage of penicillin and the order was now quite unjustified. As he understood medical opinion in relation to penicillin that substance was in no way harmful but doctors considered that the reaction of the body to it tended to diminish with frequent use. Continuous use of many drugs would be undesirable but their sale was not limited by legislation. Under the Poisons Act and the Dangerous Drug Acts the Home Secretary had power to make regulations restricting distribution but he was not aware that any legislation had been passed to restrict the sale of therapeutic substances which were not harmful.

Mr. JOHN LEWIS said the House should bear in mind that this drug could only be used with effect by injection. Any

person who proposed to use it without a medical certificate had to give himself injections. No medical man would be happy if he knew that a patient without instructions and advice was injecting himself with whatever amount of penicillin he thought fit. In any case this valuable drug should not be wasted. He suggested that the Minister of Health should find out whether penicillin tablets of 500 units each, which could be bought in any chemist's shop without a doctor's certificate, were of any use. Wing-Commander ROLAND ROBINSON wished to know if the Government was seeking to narrow the use of penicillin in Britain so that it could be exported in competition with America.

Dr. SANTO JEGER said the supply of penicillin should be controlled because when a new drug was discovered the public got the idea that it was a cure-all. There had been correspondence recently in the medical Press on deleterious effects following the use of penicillin lozenges.

Mr. LEONARD, replying for the Ministry of Supply, said there was no serious risk that penicillin supplies would be insufficient to meet the requirements in this country of medical, dental, and veterinary practitioners. America had started with control and that control was lifted. Because of what happened afterwards it had been deemed in the national interest to reimpose it. Mr. Bevan had been advised by medical experts and also by Sir Alexander Fleming that there would be danger in the uncontrolled use of penicillin and that this should not be permitted. He was advised that there was a danger to patients and others by the creation of a strain of organisms resistant to penicillin treatment. A draft Bill had been prepared to control the sale and supply of penicillin otherwise than by Order.

Refugee Doctors

On Feb. 20 Dr. SANTO JEGER asked the Minister of Health whether, in view of the fact that a larger number of doctors than at present available was necessary to implement his new National Medical Service next year and, in view of the fact that the Central Medical War Committee passed a resolution on this subject, he could state his policy on the admission of refugee doctors with foreign qualifications to practise in this country.

Mr. BEVAN said the views of the Central Medical War Committee on this matter were sought by the Home Office acting in consultation with his Department. The Committee was consulting certain other professional bodies before communicating its views to the Home Office. (See *Supplement*, Feb. 8, p. 25.)

Streptomycin.—Dr. STEPHEN TAYLOR asked on Feb. 18 whether Mr. Bevan would inform the medical profession of the hospitals at which the Medical Research Council tests of streptomycin were carried out so that they could send patients. Mr. BEVAN replied that appropriate hospitals and clinics in the areas in which the tuberculosis trial centres were situated had been informed. The particulars would be circulated more widely if it was found advisable to draw upon larger areas for the limited number of cases of suitable type with which it was possible to deal.

Penicillin.—At the request of Mr. Bevan, Mr. Wilmot is retaining the Control of Penicillin Orders till other arrangements can be made. During January, 1947, 225,387 mega units of penicillin were produced in the United Kingdom. The amount produced in this country is steadily increasing, and is sufficient to meet all prescriptions and leave a small surplus for export.

Smallpox.—Mr. CREECH JONES stated on Feb. 26 that the incidence of smallpox in Hong Kong had given rise to anxiety, but the epidemic showed signs of abating. Proved cases in 1946 numbered 1,998 with 1,306 deaths. Between Dec. 27 and Feb. 6 there were 266 cases.

Typhus.—No further cases of typhus have been reported on H.M.T. *Empire Deben* since her return to this country with four such cases.

The National Society for the Prevention of Blindness announces that as papers submitted for the glaucoma prize of $500 offered in 1944 did not conform to the criteria set up by the ophthalmological committee selected to award the prize it is again offered for the most valuable original paper adding to existing knowledge of the diagnosis of early glaucoma or the medical treatment of non-congestive glaucoma. Papers may be presented by any practising ophthalmologist of the Western Hemisphere, and may be written in English, French, German, Italian, Spanish, or Portuguese. Those written in any of the last four languages should be accompanied by a summary in English. Closing date for receipt of papers is December, 1947. The criteria may be secured by writing to the National Society for the Prevention of Blindness, 1790, Broadway, New York 19, New York, U.S.A.

The Services

Lieut.-Gen. Sir Alexander Hood, Director-General of the Army Medical Services, has been elected chairman of governors of the Star and Garter Home for Disabled Sailors, Soldiers, and Airmen, Richmond, in place of Sir Arthur Stanley, who has resigned because of ill-health.

Capt. (Hon. Major) D. A. Brigg, Capt. (Hon. Capt.) S. Lask, and Lieut. (Hon. Capt.) G. Bennett, R.A.M.C., T.A., have been awarded the Efficiency Medal (Territorial).

Capt. (Hon. Major) W. R. Blunt, R.A.M.C., has been awarded the Efficiency Medal (Territorial).

CARDIFF MEDICAL EX-SERVICE ASSOCIATION

The first annual dinner of the Cardiff Medical Ex-Service Association will be held at Park Hotel on Saturday, March 15, at 7 p.m. for 7.45 p.m. The dinner is primarily for medical men who are old students or members of the staff, past and present, of the Cardiff Medical School, who have served in either Great War. Guests may be invited provided they are ex-Service medical men. Tickets (12s. 6d. each, exclusive of wines) may be obtained from the secretary, Mr. K. M. Wheeler, Surgical Unit, Royal Infirmary, Cardiff.

Medical News

The annual general meeting of the Society of Public Analysts and other Analytical Chemists will be held at the Royal Society's rooms (Burlington House, Piccadilly, W.) on Friday, March 7, at 3.30 p.m., and will be followed, at 4 p.m., by an address by the retiring president, Dr. G. W. Monier-Williams.

A meeting of the Microbiological Panel of the Food Group of the Society of Chemical Industry will be held at the Chemical Society's rooms (Burlington House, Piccadilly, W.) on Wednesday, March 12, at 6.30 p.m., when papers will be presented on "The Biological Stability of Beer," by Mr. B. M. Brown, and "The Biological Stability of Cider, Fruit Juices, and Soft Drinks," by Prof. B. T. P. Barker and Dr. V. L. S. Charley.

The annual general meeting of the Institute of Almoners will be held at Friends House, Euston Road, London, N.W., on Friday, March 14, at 6 p.m., when Dr. J. A. Charles will deliver an address.

The annual dinner of the Midland Branch of the Society of Medical Officers of Health will be held at the Whitehorse Hotel, Congreve Street, Birmingham, on Tuesday, March 18.

A meeting of the Food Group of the Society of Chemical Industry, to which all members of the Agriculture Group are invited, will be held at the Royal Institution (Albemarle Street, W.) on Wednesday, March 19, at 6.30 p.m., when Dr. W. G. Ogg will present a survey of the work of the Rothamsted Experimental Station.

The first convention of the Society of Chiropodists (21, Cavendish Square, London, W.1) will be held at Friends House, Euston Road, London, N.W., on Thursday, Friday, and Saturday, March 20, 21, and 22. The convention will be opened on March 20, at 2.30 p.m., by Sir Hugh Lett, President of the British Medical Association; at 3 p.m. Prof. A. B. Appleton will deliver a lecture on "Posture"; and at 7.15 p.m. the annual dinner (tickets £1 10s.) will be held at the Savoy Hotel. On March 21 lectures will be delivered by Mr. Philip Wiles on "Pain and Deformity of the Metatarsals and Toes" at 10 a.m.; by Mr. Denis Browne on "Minor and Major Deformities of the Feet in Children" at 11.30 a.m.; and by Prof. A. J. E. Cave on "The Foot as a Sensory Organ" at 6 p.m. On March 22, at 10.30 a.m., the annual general meeting of the society will be held, and at 3 p.m. Dr. Allan Yorke will lecture on "Hyperkeratosis of the Sole of the Foot." The convention fee is 10s. 6d. for members and 5s. for students at any of the schools of chiropody recognized by the Board of Registration of Medical Auxiliaries. During the convention there will be an exhibition and visits may be paid to the three schools of chiropody in London.

The second International Congress of the International Academy of Legal and Social Medicine will be held at Brussels and Liége from June 25 to 28, and will be divided into five sections, legal medicine in its application to crime, social medicine, industrial medicine, medico-legal and social psychiatry, and scientific police methods. The languages will be English and French. Those who wish to present reports or read papers should notify without delay the president of the Congress, Prof. Dr M De Laet, Faculté de Médecine, 7, Rue de la Gendarmerie, Brussels, or one of the general secretaries, Prof. Dr. P. Moureau (47, Rue Villette, Liége) or Prof. Dr. F. Thomas (23, Kluyskensstraat, Ghent).

Sir Harold Hartley, delivering an address on "A Century of Chemistry" at a joint meeting of the Royal Society of Arts and the Chemical Society at the Royal Society of Arts on Feb. 19, with Sir Thomas Holland presiding, said that they were commemorating the first meeting of the Chemical Society, which took place there in 1841. The Society had been founded just over half a century after Lavoisier had laid down the first clear distinction between physical and chemical change. Dalton's atomic theory soon followed, and made possible the work of Berzelius determining the atomic weight of every known element and the composition of many compounds. Liebig, Wöhler, and Dumas had been laying the foundations of organic chemistry by making series of derivatives from natural products. By 1841 the authority of Berzelius had been seriously challenged, and when the Chemical Society had been founded there was a drift from theory towards empiricism. Kekule's theory of atom linkage had enabled him to assign definite structures to organic compounds, and in 1860 Cannizarro's treatise had led to general agreement on atomic weights and the number of atoms in a molecule. In 1860 only 60 elements had been known. The development of the periodic table by Newlands, Lothar Meyer, and Mendeléeff had enabled prediction of the properties of unknown elements, which were discovered with the help of the spectroscope. The outstanding work in organic chemistry since 1900 had been on the materials and processes of living organisms. *X* rays were of decisive help in elucidating the structure of the main constituents of living organisms—the polysaccharides and the proteins—and work on the structure of proteins was beginning to reveal the processes of growth. Our knowledge of the enzymes, vitamins, hormones, and auxins had advanced rapidly, and the identification of the vitamins had been of profound importance in nutrition. The isolation and in some cases the synthesis of the hormones had been of great value in curative medicine.

The third Annual Convention of the American Society for the Study of Sterility will be held at Hotel Strand, Atlantic City, New Jersey, on June 7 and 8. There will be lectures, discussions, and demonstrations with the object of bringing to the medical practitioner recent advances in this field. Further information may be obtained from Dr. John O. Haman, 490, Post Street, San Francisco, 2, California, U.S.A.

The King has sent an annual subscription of £1,000 for 1947 to King Edward's Hospital Fund for London.

As the result of improved methods of mass production the Commonwealth Serum Laboratories at Melbourne, Australia, are producing 50 times as much penicillin as in December, 1943. The supply is now sufficient for Australia's own needs. The retail selling price is about 3s. 5d. for 100,000 units.

Food and Nutrition is a magazine issued every fourth week from the Ministry of Food and published by H.M. Stationery Office, price 3d. The January issue contains articles on ten ways of cooking sausages, the nutrients in milk, with an observation on milk collection, distribution, and consumption, the latest "points" value news, and a note on the growing of bananas in Iceland.

Penicillin is available in two forms, the ordinary yellow penicillin, and "white" penicillin, which may be crystalline or amorphous. The Ministry of Health has asked pharmacists to note that when dispensing N.H.I. prescriptions for extemporaneously prepared topical preparations the ordinary yellow penicillin or solution-tablets should be used. "White" penicillin should be reserved for the preparation of injections and eye drops. The pricing of prescriptions dispensed during February will be done on this basis.

Dr. H. P. Chu, dean of the National Medical College at Shanghai and formerly secretary of the Chinese Medical Association, has arrived on a three months' visit to this country arranged by the British Council. This is the first time he has visited Britain. He is studying undergraduate and postgraduate medical education, the curricula of British medical schools, and all forms of medical teaching, including the training of nurses. Arrangements have been made for him to have discussions with the appropriate authorities and to visit teaching hospitals and other institutions in London and the provinces.

The Secretary of State for Scotland has appointed Mr. G. H. Kimpton to be an Under Secretary in the Department of Health for Scotland. He will be in charge of the Divisions of that Department which deal with health services in Scotland. Mr. Kimpton joined the Department in 1913 and has had wide experience of health and housing matters. He was promoted to the rank of Principal in 1935 and became an Assistant Secretary in 1940. He served as a member of the Inter-departmental Committee on the Rents Restriction Acts.

Dr. T. S. Marshall has been appointed Regional Blood Transfusion Officer, in charge of the Regional Transfusion Centre, temporarily housed at Meanwood Park Colony, Tongue Lane, Leeds. The centre, which is responsible for the transfusion needs of the Leeds Regional Hospital Area, will move later this year to premises at Seacroft Hospital, Leeds.

EPIDEMIOLOGICAL NOTES

Smallpox at Grimsby

In the outbreak of smallpox at Grimsby infection originated in a common lodging-house between Jan. 31 and Feb. 2, but the source remains unidentified. The second generation of cases involved two elderly inmates of the common lodging-house who sickened on Feb. 13 and 14 and have since died. The disease was first detected on Feb. 17.

Between Feb. 27 and March 3 there have been 10 cases diagnosed in the third generation and two of these patients have died, one of them before the appearance of a focal rash. All were in the direct line of contact with second generation cases and were under surveillance in Grimsby at the time of onset. Ten contacts at the common lodging-house remain untraced and there is no information about their movements. They are believed to include mariners, either aboard trawlers and coastal vessels or visiting Scandinavian ports, and also migrant Irish agricultural labourers. The present uncertainty calls for the greatest vigilance on the part of practitioners.

Typhoid at Watford

Three cases of typhoid have occurred in one family in the Watford area. The first case was notified on Wednesday, Feb. 5, and no further notifications have been received since then. Investigations have shown that the mother is a carrier, and the usual precautionary measures have been taken.

Influenza and Measles

Influenza apparently reached its maximum incidence in the week ending Feb. 8. In the 126 great towns 646 deaths were attributed to influenza during the first six weeks of this year. This should be compared with 1,337 in the same period last year.

The epidemic curve of measles is reaching a maximum, although a further rise during the next few weeks is probable judging from past experience. The notifications during the weeks preceding the peak in the present epidemic so far have been below the level of the last two outbreaks of 1943 and 1945.

Discussion of Tables

In *England and Wales* a decreased incidence was recorded during the fortnight for scarlet fever 156, whooping-cough 309, and dysentery 48. A rise in both weeks in the notifications of measles gave a total increase of 5,587 cases. A decrease of 71 in the notifications of diphtheria in the week ending Feb. 1 was offset by an increase of 57 in the following week.

The decrease in the incidence of scarlet fever was general throughout the country, while the fall in cases of whooping-cough was greatest in the north.

The returns for diphtheria for the week ending Feb. 1 were the lowest ever recorded, being 4 below the previous record low level at the end of December. The notifications of diphtheria for the first few weeks of this year are less than half of those recorded in the same period of last year and only one-sixth of the average of the first weeks of 1937-9.

In *Scotland* the weekly fluctuations in the notifications of infectious diseases tended to cancel each other out during the fortnight. The only diseases showing a continuous trend were acute primary pneumonia with a total increase of 82 cases and cerebrospinal fever with a total decrease of 11. The incidence of dysentery, with a decrease of 22 followed by a rise of 16, was mainly affected by the experience of Edinburgh where the cases fell from 16 to 1 and then rose to 13.

In *Eire* the increased incidence of measles was due to two outbreaks: Cork, Castletown, R.D. 26 cases and Mayo, Belmullet, R.D. 17 cases. In the first week of the fortnight the notifications of whooping-cough in Dublin, C.B. fell from 78 to 43. The rise in the incidence of scarlet fever was due to a small general increase. Notifications of diarrhoea and enteritis during the week ending Feb. 1 (12 cases) were the lowest for twelve months.

In *Northern Ireland* the epidemic of measles in Belfast C.B. has passed its maximum; 1,499 cases were notified in the fortnight compared with 1,799 in the preceding two weeks. (See also Feb. 15, p. 280.)

Week Ending February 22

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,081, whooping-cough 2,227, diphtheria 217, measles 15,765, acute pneumonia 1,139, cerebrospinal fever 90, acute poliomyelitis 14, dysentery 92, smallpox 2, typhoid 3. Deaths from influenza in the 126 great towns numbered 135.

INFECTIOUS DISEASES AND VITAL STATISTICS

No. 5

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Feb. 1.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each Infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947 (a)	(b)	(c)	(d)	(e)	1946 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	83	5	23	1	2	71	6	40	1	2
Deaths		1	1				—	1		
Diphtheria	176	9	59	28	13	496	32	108	75	16
Deaths	6	2	1		1	18	—	1	1	—
Dysentery	61	3	10	2	—	407	13	56	—	—
Deaths					—				—	—
Encephalitis lethargica, acute	2	1	—	—	—	2	—	—	1	—
Deaths		—					—			
Erysipelas			41	5	1			55	8	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				12					23	
Deaths	92	9	14		3	39	3	4	7	1
Measles*	13,501	482	254	50	767	1,167	221	93	112	4
Deaths	2	1	1		5	4	1	—	1	—
Ophthalmia neonatorum	52	—	16	—	—	54	5	16	1	—
Deaths										
Paratyphoid fever	1	—	2 (B)	—	—	2	—	—	—	—
Deaths	—	—	—		—	—	—	—	—	—
Pneumonia, influenzal	1,278	79	27	18	7	1,794	128	124	35	14
Deaths (from influenza)†	148	23	10		1	297	48	40	10	8
Pneumonia, primary			310	39				510	28	
Deaths		94			19		118		23	17
Polio-encephalitis, acute	12	—				2	1			
Deaths		—					—			
Poliomyelitis, acute	1	1	1	8	1	13	1	1	—	—
Deaths		—					—			
Puerperal fever		—	18		—		2	22		
Deaths										
Puerperal pyrexia‡	126	10	10	1	—	160	11	15	1	2
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,135	89	288	41	36	1,351	135	225	22	33
Deaths	—	—	—		—	1	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths					—				—	—
Typhoid fever	6	1	1	5	—	7	—	—	3	—
Deaths	—	—	—		—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths					—				—	—
Whooping-cough*	1,890	156	295	60	43	1,265	118	93	25	4
Deaths	11	4	8			11	—	—	1	2
Deaths (0–1 year)	338	74	78		22	474	66	70	43	17
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	7,079	1222	775		204	7,211	1231	931	281	202
Annual death rate (per 1,000 persons living)			16·1					20·5	18·0	
Live births	9,677	1485	1189		266	7,354	1050	865	316	281
Annual rate per 1,000 persons living			24·0					17·4	20·2	
Stillbirths	245	30	38			214	28	32		
Rate per 1,000 total births (including stillborn)			31					36		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

It is still not possible to publish the return of births and deaths for Eire for the weeks ended Oct. 26, Nov. 2, 9, 16, 23, 30, Dec. 7, 14, 21, 28, 1946; Jan. 4, 11, 18, 25, Feb. 1, 1947.

No. 6

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Feb. 8.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each Infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947 (a)	(b)	(c)	(d)	(e)	1946 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	94	8	19	10	2	98	6	24	4	3
Deaths		4	1				3	1		
Diphtheria	233	23	68	20	7	477	27	140	41	24
Deaths	4	1	—		—	14	1	2	—	—
Dysentery	49	6	26	4	—	337	24	65	—	—
Deaths					—				1	—
Encephalitis lethargica, acute	1	—	—	—	—	4	1	1	—	—
Deaths		—					—			
Erysipelas		—	45	6	2			46	8	4
Deaths							—			
Infective enteritis or diarrhoea under 2 years				27					27	
Deaths	106	13	20		1	48	5	10	11	1
Measles*	17,258	583	326	66	740	1,211	237	221	85	1
Deaths	20	1	—		2	5	—	—	—	—
Ophthalmia neonatorum	59	3	17	—	1	67	5	20	—	—
Deaths										
Paratyphoid fever	3	—	—	—	1 (B)	8	—	—	—	—
Deaths	—	—	—		—	—	—	—	—	—
Pneumonia, influenzal	1,583	111	13	35	12	1,832	114	107	40	14
Deaths (from influenza)†	211	30	12		7	304	49	36	13	6
Pneumonia, primary			285	49				528	43	
Deaths		148			14		84		14	16
Polio-encephalitis, acute	1	—				—	—			
Deaths		—					1			
Poliomyelitis, acute	10	2	1	7	—	11	—	1	1	—
Deaths		—					—			
Puerperal fever		1	6		—		1	6		—
Deaths										
Puerperal pyrexia‡	115	11	18	—	—	173	16	10	1	1
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,130	68	244	21	30	1,405	124	178	21	33
Deaths	1	—	—		1	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths					—				—	—
Typhoid fever	7	—	—	6	—	6	—	—	3	1
Deaths	—	—	—		—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths					—				—	—
Whooping-cough*	1,842	161	384	66	30	1,253	100	69	49	8
Deaths	16	4	2		—	8	1	1	1	1
Deaths (0–1 year)	672	79	79		14	462	63	67	40	5
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	8,308	1515	834		208	6,582	1049	837	274	185
Annual death rate (per 1,000 persons living)			17·3					18·4	17·6	
Live births	9,547	1534	1191		331	7,382	1106	874	418	258
Annual rate per 1,000 persons living			24·0					17·6	26·8	
Stillbirths	308	38	39			231	31	33		
Rate per 1,000 total births (including stillborn)			32					36		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

It is still not possible to publish the return of births and deaths for Eire for the weeks ended Oct. 26, Nov. 2, 9, 16, 23, 30, Dec. 7, 14, 21, 28, 1946; Jan. 4, 11, 18, 25, Feb. 1, and 8, 1947.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Sulphonamide Snuff for Colds

Q.—*Could frequent sniffing of sulphapyridine powder as a preventive of colds cause damage to the blood similar to that resulting from prolonged overdosage by mouth?*

A.—It is difficult to believe that anyone would take sulphapyridine snuff every two or three hours daily throughout a winter, and even if he did he would be lucky to escape colds. Assuming, however, that this is what is meant, the answer is that in a small minority of individuals a toxic effect on the bone marrow might be produced. This has been the experience when sulphanilamide or sulphadiazine has been given in small doses for long periods with a view to preventing recurrences of rheumatic fever. Sulphapyridine is very insoluble. Taken as snuff most of it would be carried to the pharynx in mucus and swallowed, still in solid form, with the same result as if it had been taken by mouth. A more suitable sulphonamide for use as snuff, when this treatment is really indicated, is sulphathiazole. It is very doubtful whether sulphonamide snuffs are of any value except for the treatment of certain specific bacterial infections or carrier states.

Pseudo-Hermaphrodite

Q.—*A healthy woman aged 35 recently gave birth to a 9½-lb. (4.3-kg.) baby. Presuming the baby to be a girl, the labia majora are wide with a small rounded swelling in the centre of each, giving the appearance of a scrotum divided in two down the midline, and are separated by a mucous membrane; the clitoris is slightly enlarged and the labia minora are absent. The vagina is represented by a shallow dimple and the umbilicus is immediately above the symphysis pubis. Is there any test to determine the sex, and is hormone treatment of use?*

A.—It seems likely that the small rounded swellings in the labia are gonads, and, if this is so, they are probably testes, the "labia majora" being in fact a bifid scrotum and the enlarged clitoris a rudimentary penis. This type of abnormality of the external genitalia is by no means uncommon. The lower abdominal wall is not so often involved, but this feature of the case is not surprising bearing in mind that the external genitalia are developed in the area of the ectodermal cloaca, which extends initially from the body stalk to the rudimentary tail.

It will be difficult to prove the child's sex by chemical or other clinical tests. Estimation of the excretion of the 17-ketosteroids in the urine might be of some value. Thus, if the child were female the virilism (for example, the enlarged clitoris) will probably be the result of overactivity of the adrenal cortex and the ketosteroid excretion would be high. On the other hand, if it is a male, the 17-ketosteroid excretion is likely to be as in normal male babies—at an extremely low level. However, too much reliance could not be placed on tests of this kind because the normal excretion levels of the various hormones and their end-products have not yet been established for infancy and childhood. It will almost certainly be necessary to determine the sex by biopsy of the gonad, and at the same time it will be desirable and important to carry out laparotomy to see what internal genital organs are present. One of the difficulties is to decide the time at which surgical intervention should be carried out. Every case has to be judged on its merits, but the general view is that operation should be deferred until after puberty—that is, until such time as there is evidence as to the nature of the secondary sex characters, including the mental outlook and sex impulses. In addition to determining the true state of affairs by laparotomy it will then be possible at the same time to carry out some sort of sex-formative operation, and in doing so the wishes of the individual should be kept in mind. Thus, if the natural inclinations are feminine, the testes in the labia and the phallus could be removed.

If it is decided to adopt this waiting policy, the child should in the meantime be brought up as a male. Nearly all these cases turn out ultimately to be male, and in any case there is less risk of social difficulties if a female pseudo-hermaphrodite is sent to a boys' school than if a male pseudo-hermaphrodite is sent to a girls' school. The later developments in cases of this kind are varied and difficult to foretell even if the nature of the gonad is known. Secondary sex characters, including sex desire, depend so much on the other endocrine organs, and the ultimate outlook of the individual may be feminine or masculine. It is unlikely that hormone therapy will be of practical value in any attempt to alter the sex at a later age; the better plan will be to aim at modifying by plastic surgery the genital apparatus to suit the individual rather than vice versa.

A Child in Moral Danger

Q.—*I was called to see an 11-year-old-girl with bronchitis. Her mother confided to me that her husband, recently returned after an absence of six years, had been behaving very strangely towards the girl. He takes her out each evening, and the neighbours are beginning to talk. The mother, coming suddenly into the house, has often found them in compromising positions. On one occasion she found her husband embracing the girl with his hands on her breasts, which are fairly well developed. The maternal grandmother has seen many similar incidents; once she saw them separating from an embrace and the girl was flushed and panting, and looked frustrated. The husband was untouched by an appeal from his wife pointing out the impropriety of his conduct. What do you advise?*

A.—Under Section 61 of the Children and Young Persons Act, 1933, if a juvenile court is satisfied that a child is in need of care or protection it has various powers, including the power to remove the child from home or to place it under supervision. A child in need of care or protection is, among other things, one whose parent or parents are not looking after it properly and who is in moral danger. If evidence could be adduced that a father is interfering sexually with his child, even though such interference did not merit a criminal charge of incest, the child would almost certainly be deemed to be in need of care or protection. Proceedings under this section can be initiated, *inter alia*, by the police or by an authorized person. In practice the only "authorized person" is the N.S.P.C.C.

In the present case the doctor (or, indeed, anyone else in whom the mother had confided) should in the first instance explain the legal position to the mother as set out above. It is then for her to decide, preferably in consultation with the police or the N.S.P.C.C. (she would probably prefer the latter), whether the evidence is strong enough to bring a case; it being borne in mind that both the father and the girl will probably vehemently deny all the allegations made. If, however, the mother's observations can be confirmed in court by those of the grandmother, there would seem to be some chance of a case under this section being successful. On the other hand, if it is felt that the evidence is not sufficient, then the mother and grandmother can do no more than continue to keep watch. It may well be, of course, that the threat of proceedings will deter the father from making any further advances—at least for the time being. In considering what action to take, the mother will naturally have regard to the effect of such proceedings, or the threat of them, upon her marriage. If, as the result, her husband leaves her, she would then be free to apply to the court for a maintenance order giving her the custody of the child.

The address of the headquarters of the N.S.P.C.C. is Victory House, Leicester Square, London, W.C.2.

Bleeding Tooth-sockets

Q.—*Apart from mechanical means, what specific remedies can be applied for a bleeding tooth-socket following dental extraction?*

A.—Mechanical methods offer much the best hope of stopping haemorrhage from a tooth-socket, but these methods may be combined with the local use of drugs. Snake venom or pectin derivatives can be used locally, and general agents such as calcium may be injected. Mechanical means are usually sufficient by themselves. It is important, however, that the

plug should not be pushed into the tooth-socket but only placed over it, as prevention of the normal clot forming in the socket inevitably leads to sepsis, sequestration of the bony walls, and delayed healing.

Cooking Eggs and Salmonella

Q.—You published (Oct. 19, 1946, p. 583) an annotation about the danger of infection of dried egg powder by salmonella organisms. Is there any method of cooking which will neutralize this danger?

A.—Salmonella organisms have the usual susceptibility of non-sporogenous bacteria to heat; that is to say, at 55° C. they are killed within 30 minutes, and at higher temperatures in proportionally shorter periods, survival at over 70° C. being measured in seconds rather than in minutes. The following culinary methods of using egg or egg powder must be considered in this light. In the preparation of salad creams no heat is employed; the organisms survive unless killed by vinegar. When poaching eggs (this applies only to shell eggs) the yolk is not adequately heated and the organisms survive; this is the commonest mode of infection. The same applies to light boiling. In scrambling and omelette-making, if the whole of the mixture is coagulated the organisms will be killed; if any of it remains fluid they may not. Only cake-making may be considered entirely safe.

Dermatomyositis

Q.—A boy of 16 is suffering from dermatomyositis. What are the aetiology and the prognosis of this condition, and is there any possibility of cure?

A.—The aetiology is unknown; some believe the affection to be infective, others that it has an endocrine origin—especially related to dysthyroidism. Prognosis is very variable; recovery may occur or the affection may remain stationary at a stage not causing great disability. Death is often by intercurrent respiratory disease if disablement involves the chest musculature. Biochemical investigation may help to indicate a method of treatment, especially in relation to sodium and potassium metabolism. A similarity to myasthenia gravis and to Addison's disease should not be overlooked. Occasionally ephedrine has seemed to help. Treatment is essentially symptomatic.

Itching of the Hands

Q.—A lady aged 40 complains of intolerable itching of the hands soon after immersion in cold water. With warm water the irritation is not so marked. Examination reveals no abnormality of the skin, the local temperature being unaffected. She is subject to Raynaud's phenomenon and moderate chilblains on the fingers in the winter. Any advice would be appreciated.

A.—It would be interesting to know how long the patient has been subject to this trouble and whether it followed any infective illness. The condition would seem to be related to "cold urticaria," which is generally seen at puberty or after an infective illness. This is apparently due to the local effects on the smaller vessels and nerve-endings of a metabolite produced in the tissues by the cold. "Benadryl" might control such a reaction. Vitamin K therapy might improve the poor peripheral circulation and reduce the tendency to such reaction.

Third-generation Syphilis

Q.—Is congenital syphilis a cause of sterility or infertility? If not, is it possible for a congenital syphilitic to transmit the infection to his or her offspring?

A.—Congenital syphilis is no more likely to cause sterility or infertility than the acquired form or than any disease which affects the organs of procreation. Naturally, such conditions as congenital tabes or G.P.I. are likely to cause infertility, and gummata of the testicles to result in sterility; such conditions are rare. It is generally believed nowadays, though it is denied by some, that third-generation syphilis does occur, but it is certainly very rare. It does not seem possible for a congenitally syphilitic male to produce a syphilitic baby by a healthy mother.

Letters and Notes

Photographs of Nigerian Pagans

An exhibition of photographs, taken by Dr. Joseph Denfield, was opened on Monday, Feb. 10, by Mr. Michael Huxley, Editor of the *Geographical Magazine*, at the Ilford Galleries, 101, High Holborn, London, W.C.1. These photographs were taken by Dr. Denfield during his tour of military service in Northern Nigeria. They illustrate vividly the life of the pagan inhabitants of the Bauchi Plateau who live in conditions almost entirely unaffected by Western civilization. Apart from their very high artistic merit many photographs bring out points of medical interest: the use of keloids for personal adornment; the decorative value of nose and lip plugs; duck-billed women, a fashion originally introduced to make females unattractive to raiders from other tribes but persisting even when raiding has ceased. A tight string round the neck is said to be a sovereign remedy against endemic goitre, which has a high incidence in some of the villages.

The Irigwe tribe is divided into male and female sections: a male of the female section is forbidden to wear any clothes whatsoever, while his hair must be dressed in feminine style. Psychoanalysts have not yet visited this tribe. One photograph illustrates the flogging ceremony of the Fulani. It may seem a little odd to select your herdsman because of his power to endure a severe flogging without flinching, but like the Spartans in ancient Greece no Fulani youth even to-day has any chance of obtaining a wife unless he has proved his manhood in this way. The exhibition will remain open for some weeks.

Control of Measles

Mr. ELWIN HARRIS, F.R.C.S. (Bristol) writes: I am interested in the articles on measles in the *Journal* for Feb. 8 (pp. 209 and 225). Many years ago oiling the patient was recommended for scarlet fever, and I have always used it in the treatment of measles. The treatment consists of a hot blanket bath followed by the application of oil to the whole body. The oil used is ol. eucalypti 10 min. (0.6 ml.) and ol. olivae ad 1 oz. (28 ml.). This is carried out each evening and in severe cases in the morning as well. I cannot recall a single case of otitis media complicating measles during twenty-two years of general practice. I have attributed the efficacy of the treatment to the fact that the patient inhales the eucalyptus throughout the night, but your articles suggest that it may be otherwise. Not only is the treatment effective in preventing complications, but it is extremely soothing to the patient and induces sleep. Oiling floors and sheets is hardly practicable in domiciliary practice, but oiling the patient is easy and, in my experience, extremely effective.

Correction: Whooping-cough Immunization

In the answer to the question (Feb. 1, p. 207) as to which public health authorities were carrying out immunization against whooping-cough on a large scale, it was stated that trials had been organized in the boroughs of Tottenham and Wembley, and in the City of Manchester, using American vaccines. A somewhat similar trial, using Sauer vaccine, was undertaken in Oxford in 1944 with the co-operation of the medical officer of health and the Medical Research Council. This Oxford trial should have been mentioned in the original answer.

Correction

In the *Journal* of Feb. 8 at page 224 under "Books Received" the editors of the book *The Nation's Food* were incorrectly designated; the following is correct: A. L. Bacharach, M.A., F.R.I.C., and T. Rendle, F.R.I.C., with an introduction by Sir Joseph Barcroft, C.B.E., F.R.S.

In the reply to a question on the increase in tuberculosis (Jan. 4, p. 39) the figures for tuberculosis from 1939 to 1944 were those for males only.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association. TELEPHONE: EUSTON 2111. TELEGRAMS: *Medisecra, Westcent, London*.

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

NEGOTIATING COMMITTEE

The Negotiating Committee met Mr. Aneurin Bevan, the Minister of Health, on Friday, Feb. 28. The representations made to the Minister were based on the following resolution passed at the Special Representative Meeting of the Association on Jan. 28, and subsequently adopted by the Negotiating Committee:

"That the Association, having considered the final results of the plebiscite and the Minister's letter of Jan. 6 to the Presidents of the Royal Colleges and desiring to secure for the people the best possible health service, is willing that discussions be entered into with the Minister to that end, provided that such discussions are comprehensive in their scope, and that the possibility that they may lead to further legislation is not excluded; and that after the conclusion of these discussions, a second plebiscite be taken on the issue of entering the Service."

As an outcome of the meeting, six subcommittees of the Negotiating Committee dealing with general practice, hospital and specialist services, public health, mental health services, eye services, and superannuation, respectively, will begin comprehensive discussions with the Ministry based on the resolution of the Representative Body.

Association Notices

SCHOLARSHIPS IN AID OF SCIENTIFIC RESEARCH

The Council of the British Medical Association is prepared to receive applications for Research Scholarships as follows: an Ernest Hart Memorial Scholarship, of the value of £200, a Walter Dixon Scholarship of the value of £200, and four Research Scholarships, each of the value of £150. These Scholarships are given to candidates whom the Science Committee of the Association recommends as qualified to undertake research in any subject (including State Medicine) relating to the causation, prevention, or treatment of disease. Preference will be given, other things being equal, to members of the medical profession. Each scholarship is tenable for one year, starting on Oct. 1. A scholar may be reappointed for not more than two additional terms. A scholar is not necessarily required to devote the whole of his or her time to the work of the research but may hold a junior appointment at a university, medical school, or hospital, provided the duties of such appointments do not interfere with his or her work as a scholar.

Conditions of Award, Applications

Applications for scholarships must be made not later than Saturday, May 31, on the prescribed form, a copy of which will be supplied on application to the Secretary of the Association, B.M.A. House, Tavistock Square, London, W.C.1. Applicants are required to furnish the names of three referees who are competent to speak as to their capacity for the research contemplated.

Branch and Division Meetings to be Held

NORTH OF ENGLAND BRANCH.—At Royal Victoria Infirmary, Newcastle-upon-Tyne, Thursday, March 13, 7.15 p.m. Clinical demonstration by Mr. J. V. Todd: Treatment of Common Foot Disorders; 8.45 p.m., Surg. Rear-Admiral R. J. Willan: Forty Years' Experience of Haematuria in Surgical Practice.

RICHMOND DIVISION.—At Royal Hospital, Richmond, Friday, March 14, 9 p.m. Dr. R. M. B. MacKenna: Modern Trends in Dermatology.

WAKEFIELD, PONTEFRACT AND CASTLEFORD DIVISION.—At Clayton Hospital, Wakefield, Thursday, March 13, 8.15 p.m. Prof. R. E. Tunbridge: Peripheral Vascular Disorders.

DIARY OF SOCIETIES AND LECTURES

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—*Mon.*, 3.45 p.m., Dr. L. E. Glynn: Aneurysms and Aneurysm Formation. 5 p.m., Prof. E. Goldby: Intra-Cranial Anatomy of the Trigeminal Nerve. *Tues.*, 3.45 p.m., Prof. P. R. Peacock: Aetiology of Gastric Cancer: An Experimental Approach. 5 p.m., Prof. E. Goldby: The Anatomy of the Optic Pathways. *Wed.*, 3.45 p.m., Prof. A. Haddow: Cancer as a Problem in the Transformation of Cells and Viruses: (i) Carcinogenesis by Chemical Agents. 5 p.m., Prof. C. M. West: The Reproductive System (1). *Thurs.*, 3.45 p.m., Prof. A. Haddow: Cancer as a Problem in the Transformation of Cells and Viruses: (ii) The Nature and Role of Tumour-producing Viruses. 5 p.m., Prof. C. M. West: The Reproductive System (2). *Fri.*, 3.45 p.m., Dr. J. R. M. Innes: Some Aspects of Animal Pathology of Interest to the Medical Worker. 5 p.m., Dr. T. E. Barlow: The Development and Form of the Bronchial Tree.

ROYAL SOCIETY OF MEDICINE

Section of Experimental Medicine and Therapeutics.—Tues., 5 p.m. Discussion: New anti-malarials and malarial control. Openers: Brig. J. S. K. Boyd, and Prof. N. Hamilton Fairley.

Section of Psychiatry.—Tues., 5.30 p.m. Paper by Dr. Russell Davis: Disorders of skill; an experimental approach to some problems of neurosis.

Section of Physical Medicine.—Wed., 4.30 p.m. Paper by Mr. H. E. Griffiths: Analysis of function.

Section of Proctology.—Wed., 8.30 p.m. A clinico-pathological meeting will be held

Section of Ophthalmology.—Thurs., 5 p.m. (Cases at 4.30 p.m.) Discussion: Allergy in Ophthalmology. Openers: Mr. O. Gayer Morgan, Dr. C. J. C. Britton, and Dr. J. T. Ingram.

Clinical Section.—Fri., 5 p.m. (Cases at 4 p.m.)

BIOCHEMICAL SOCIETY.—At Guy's Hospital Medical School, *Sat.* (March 15), 2.30 p.m. Annual general meeting. Communications and demonstrations.

BRITISH INSTITUTE OF PHILOSOPHY.—At Eugenics Theatre, University College, Gower Street, W.C., *Fri.*, 7.30 p.m. Prof. L. J. Russell: Philosophy and Life.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W.—*Mon.*, 8.30 p.m. Discussion: Modern Treatment of Thyrotoxicosis. To be introduced by Dr. Horace Evans and Mr. Geoffrey Keynes.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 26, Portland Place, W.—*Wed.*, 3.30 p.m. Miss Isabel Macdonald: The History of Nursing (Illustrated).

WEEKLY POSTGRADUATE DIARY

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At Edinburgh Royal Infirmary, *Tues.*, 5 p.m. Prof. J. H. Gaddum: Introduction of New Remedies.

LONDON SCHOOL OF DERMATOLOGY, 5 Lisle Street, Leicester Square, W.C.—*Tues.*, 5 p.m, Dr. R. F. Bettley, Eczema. *Thurs.*, 5 p.m., Dr. J. L. Franklin, Occupational Diseases of the Skin.

BIRTHS, MARRIAGES, AND DEATHS

The charge for an insertion under this head is 10s. 6d. for 18 words or less. Extra words 3s. 6d. for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.

BIRTHS

CATTERALL.—On Feb. 8, 1947, at Preston Royal Infirmary, to Elizabeth (*née* Cormack), wife of Dr. S. Catterall, Brockhall, Langho, Lancs., a daughter.

GORDON.—On Feb. 8, 1947, at Nuffield House, Guy's Hospital, to Sally (*née* Allingham), wife of Dr. John Gordon, of Esher, a son—Andrew Charles John.

LANDON.—On Feb. 5, 1947, at Burgh Heath, Surrey, to Stella (*née* Charter), wife of J. J. Landon, M.B., B.Ch., a son—John Richard.

LITTLE.—On Feb. 12, 1947, at Bangor, N. Wales, to Margaret Neved (*née* Eames), wife of Dr. D. Crawford Little, a son.

MCBOYLE.—On Feb. 16, 1947, to Catherine, wife of Dr. J. R. McBoyle, 52, Earl Marshal Road, Sheffield, a son. Both well.

RIORDAN.—On Jan. 18, 1947, to Olga, wife of Dr. T. P. Riordan, of Willoughby, Barley Lane, Goodmayes, a son—Kevin Vaughan.

ROHAN.—On Jan. 27, 1947, at Shrublands Nursing Home, to Chris (*née* Macleod), wife of Dr. J. C. Rohan, 34, Coombe Road, Croydon, a son—Denys.

VARIAN.—On Jan. 11, 1947, at Bath, to Katha, wife of Mr. S. N. Varian, a son—Nigel Stephen.

WYSE.—On Feb. 6, 1947, to Major and Mrs. R. W. Wyse, Southlands, Ellesmere Park, Eccles, Lancs., a son.

MARRIAGES

ALLEN—COLLINS.—On Feb. 1, 1947, at the Savoy Chapel, London, Dr. Richard Allen, R.A.F.V.R., of Bridlington, to Miss Judy Collins, C.S.P., of Bromley.

HARRIS—OSMOND.—On Jan. 29, 1947, in Nairobi, Kenya, Norman Francis Harris to Dr. L. B. Mary Osmond (*née* Watch).

HAWKINS—FROLIC.—On Feb. 14, 1947, Peter Shayle Hawkins, M.R.C.S., to Frieda Elizabeth Frolic.

IGHODARO—COLE.—On Jan. 25, 1947, at Newcastle-on-Tyne, Samuel Osarogie Ighodaro, M.A., of Benin City, Nigeria, West Africa, to Irene Elizabeth Beatrice Cole, M.B., B.S., of Freetown, Sierra Leone, West Africa.

MORRICE—STEWARD.—On Feb. 6, 1947, at Manchester, George Morrice, M.B., Ch.B.Aber., to Margaret Steward, daughter of Dr. A. B. Steward, 25, Windsor Road, Manchester, 10.

DEATHS

BRIGG.—On Feb. 21, 1947, at 11, Sunnybank Road, Edgerton, Huddersfield, William Edward Brigg, M.B., Ch.B., aged 31.

CUMMINS.—On Feb. 8, 1947, at Smyrna Beach, Florida, Major Arthur Gordon Cummins, M.C., late R.A.M.C.

GRAY.—On Jan. 21, 1947, at Totana, Murcia, Spain, Albert G. Gray, M.B., B.Ch., aged 70.

LEDGER.—On Feb. 7, 1947, at Torquay, A. Vernon Ledger, M.D. (formerly of Plymouth).

MCNEILL.—On Feb. 3, 1947, in London, A. N. R. McNeill, D.S.O., M.B., Ch.B., D.P.H., Colonel A.M.S. (retd.), beloved husband of Nora McNeill.

NAVARRA.—On Feb. 22, 1947, at Llandudno Hospital, Norman Navarra, L.R.C.P., M.R.C.S., D.P.M., formerly Deputy Medical Superintendent City of London Hospital, Dartford, aged 70.

SMITH.—On Jan. 30, 1947, at 150, Derby Road, Long Eaton, Nottingham, Reginald Farmery Smith, M.R.C.S., L.R.C.P., beloved husband of Helen (Carmichael), M.B., Ch.B.